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COMPLETE GRADED ARITHMETIC

PART FIRST

FOR FOURTH AND FIFTH GRADES

BY
GEORGE E. ATWOOD

BOSTON, U.S.A.:
D. C. HEATH & CO., PUBLISHERS.
1894.

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PREFACE.

THE two objects to be sought in teaching arithmetic are skill and power: skill in arithmetical operations, and a well-developed power to apply the principles of the science in the solution of the practical problems of every-day life. Either of these results is of little value without the other. Skill is attained only by repeated doing, and intellectual power is developed by the steady and continued exercise of the intellectual faculties. It is therefore evident that, during the first part of the course, there should be daily drill to develop skill in the fundamental processes; and throughout the course there should be constant work the object of which is to train and develop the reason. Teachers recognize these truths, but to accomplish the desired results, they have found it necessary, on account of the usual arrangement of arithmetics, to provide much supplementary work for their classes. Teachers appreciate the importance of a constant review, and yet the topical arrangement of most text-books in arithmetic makes it certain that in most cases the necessary review will not be given. The exceptional teacher, however, who insists that every lesson shall include a review of some topic previously studied finds himself burdened with the work of planning and providing the extra work. Teachers have therefore felt the need of a text-book in arithmetic the work of which can be pursued in regular order, and the use of which will give the desired skill and power with the minimum amount of care and labor on their part. They want a book in which each day's work has its review as well as new work. They want a book in which all needed work is planned, prepared, and arranged for them. They want a book the work of which will in no case need to be supplemented.

This work has been prepared to meet these demands. The plan and arrangement are different from that of any other text-book on the subject, but it is believed that teachers will welcome the departure. The topical arrangement has been discarded, especially in the lower grades. The work has not been prepared on the assumption that one topic is to be presented, studied, and mastered before another topic is taken up. It is prepared rather in accordance with the well-established principle that with children long-continued practice is necessary to develop skill and fix principles. The work is divided into grades, the work of a grade being the work for one year. Each grade is divided into three terms, and each term into fifty lessons. This book contains the work for the fourth and fifth grades. The course of study and contents will show the kind and amount of work in each grade.

The work is planned for the teacher in every respect. It has been the aim to relieve the teacher of all care except to see that each lesson is well done. The order and time of taking up new work are indicated by notes to the teacher, given at the end of the lessons. These notes generally indicate also that new work will begin in the following lesson. As new topics are taken up, no space is given to simple questions and problems to which the term, "inductive method," has been applied. Neither is any space given to formal explanations or analyses of problems. Pupils rarely look at these things, and teachers who know the subject have their own way of presenting it and are wholly independent of the book. It is therefore seriously doubted whether all this material is of the least value either to teachers or to pupils.

There is a difference of opinion among teachers as to the value of definitions and rules in teaching arithmetic, but most teachers are convinced that pupils should memorize the best form of definitions and principles, for they are the basis of much of the reasoning done in the work. It is undoubtedly true also that the memorizing of clear and concise rules aids materially in fixing arithmetical processes in mind. This does not mean that rules should be memorized in advance of all knowledge of the processes, but that they should always follow more or less practice. All definitions, principles, and rules are given in the back part of the book and are numbered. Notes to the teacher, before referred to, indicate when they are to be taught, and the first number in many of the lessons indicates which ones are to be learned.

A prominent feature of the work is the number and character of the problems. Only a careful examination and use of the same can reveal the effort that has been put forth to prepare and arrange work that shall always compel the closest attention of pupils, and the faithful doing of which must result in increasing independence, self-reliance, and power. No problems, especially in the fundamental rules, either in simple numbers, denominate numbers, or United States money, are arranged ready for solution. The greatest possible variety in the statement of problems will also be found. A special feature of the problems is that very often only the conditions of a transaction are given, no question being asked. Pupils are thus required to determine for themselves *what* can be found as well as *how* to find it. This idea is in harmony with practical life; for when pupils leave school, only given conditions are presented to them, and they must reason out the conclusions for themselves.

No pains have been spared to make a book that can be used with the minimum amount of labor on the part of the teacher, and which will at the same time give the best possible results. It is hoped that teachers may find it in line with educational progress and worthy of use.

GEORGE E. ATWOOD.

TARRYTOWN, N. Y.,
August, 1893.

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MOST OF THE PREVIOUS WORK CONTINUED.

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COURSE OF STUDY.

FIRST GRADE.

Teach numbers to ten. Teach one number at a time. Teach each number as a whole first, and then lead the pupils to discover by the use of objects all combinations of two numbers by addition and multiplication that make the number, and all separations by subtraction and division. Lead them to discover also the equal parts of numbers, as halves of 2, 4, 6, 8, and 10; thirds of 3, 6, and 9; and fourths of 4 and 8. Show that one-half of a thing is one of its two equal parts; one-third, one of its three equal parts; two-thirds, two of its three equal parts, etc. After each number is known and the combinations and separations have been discovered from the use of objects, teach the figures and signs necessary to express all the facts learned. After they have learned the facts in each number, omit the use of objects, and use the language of arithmetic. Guard against teaching only the language of arithmetic. Be sure that when pupils see a figure or hear the numbers used, they can show that number of things; and that when they see indicated combinations and separations, they can show their meaning by the use of objects. Write such expressions as $4 + 3 = 7$, $5 - 2 = 3$, 4 2's $= 8$, $4 \times 2 = 8$, and $8 \div 2 = 4$ on the board, and have pupils show what they mean. Also make such combinations and separations of objects before the class and have pupils represent them, using figures and signs. Keep up a constant drill, both in oral and written work, to fix thoroughly in mind all combinations and separations learned. Throughout the year make practical application of the facts learned in a variety of concrete problems. For pupils' work, write on the board such expressions as 4 + 2, 6 − 3, 3 × 2, 8 ÷ 2, and ½ of 6, and have pupils make problems, using these numbers and their indicated relations. Frequently require pupils to illustrate with objects the solution of problems.

SECOND GRADE

1. Teach numbers to 16, including fractional parts to fifths. Notice carefully the suggestions for first grade. Teach the inch, foot, and yard, and lead pupils to discover the number of inches in a foot, feet in a yard, gills in a pint, pints in a quart, quarts in a gallon, quarts in a peck, and pecks in a bushel. Have pupils make problems and illustrate the solution of problems as in first grade. Constant application throughout the year of all knowledge of numbers to the solution of concrete problems. Write numbers to 50.

2. Teach numbers to 20, including fractional parts to sixths. Teach the number of units in a dozen and half-dozen, the number of ounces in a pound, and the number of feet in a rod. Let the concrete problems given this term frequently involve two or more of the fundamental rules. Have pupils give oral and written problems from indicated work on the board. Constant drill, oral and written, with abstract numbers to fix thoroughly in mind all combinations and separations in numbers to 20. Teach Roman notation to 20. Write numbers to 500.

3. Continue all work of preceding terms. Teach all multiplications and divisions, products and dividends not to exceed 50. Daily exercises to secure rapid adding, sums not to exceed 50. Add columns of 2's, 2's and 1, 3's, 3's and 1, 3's and 2, and in the order named. Roman notation to 50. Write numbers to 1000.

THIRD GRADE.

1. Review previous work, and do not advance until all work required in second grade has been thoroughly done. Teach all the multiplications and divisions, products and dividends not to exceed 144. Daily drill to secure rapid addition and subtraction. Review columns of 2's and 3's, and drill on columns of 4's and 5's in the same way. Constant application throughout the year of all knowledge of numbers in the solution of concrete problems. Have pupils make problems as in second grade. Roman notation to 100. Write numbers to 1,000,000.

2. Continue work of previous term. Teach addition and subtraction with reasons for processes. Teach fractional parts, including sevenths, eighths, and ninths. To secure rapid adding, drill on columns of 6's, 7's, 8's, and 9's, besides reviewing previous work. Teach the number of cents in a dime, dimes in a dollar, cents in a dollar, units in a score and gross, table of time, rods in a mile, and gallons in a barrel. Teach how to express cents in connection with dollars.

3. Continue work of preceding terms, and teach multiplication when the multiplier is less than ten. Teach square inch, square foot, square yard, the number of square inches in a square foot, square feet in a square yard and square rod, and square rods in an acre. Continue the drill for rapid adding, striving for the greatest possible rapidity. Give

frequent drill also on the multiplications and divisions. Aim to secure accuracy and rapidity in all work. Train pupils in all their work not to guess at results.

FOURTH GRADE.

1. Test previous work. Teach division when the divisor is less than ten. Teach cubic inch, cubic foot, cubic yard, the number of cubic inches in a cubic foot, cubic feet in a cubic yard, cubic feet in a cord, and cubic inches in a gallon. Apply all the fundamental rules to federal money and denominate numbers. Continue throughout the year the exercises of the third grade to secure rapid addition and subtraction. Constantly apply all knowledge of numbers in solving practical problems.

2. Continue all work of first term, and teach multiplication when the multiplier is greater than ten. Find fractional parts of numbers, simple and denominate. Find the area of rectangular surfaces. Simple examples in reduction ascending and descending.

3. Teach long division. Find the volume of rectangular solids, also the capacity of rectangular cisterns. Solution of abstract and concrete problems that will require the application of all their knowledge of numbers.

FIFTH GRADE.

1. Review and continue the work of the fourth grade. Teach thoroughly notation, numeration, addition, subtraction, multiplication, and division, carefully developing all definitions, principles, and rules. In this and all succeeding grades, let all rules follow and grow out of practice. Require frequent analysis of abstract and concrete problems. The sum of two numbers and one of them given, to find

the other. The difference between two numbers and one of them given, to find the other. The product and one or two factors given, to find the other. The divisor and quotient given, to find the dividend. Constantly review previous work.

2. Teach factoring, cancellation, greatest common divisor, least common multiple, and reduction of fractions. Lead pupils to make a clear distinction between greatest common divisor and least common multiple. Give many concrete problems involving greatest common divisor and least common multiple. Constantly review previous work.

3. Complete fractions. Add and subtract mixed numbers without reducing them to improper fractions. Give much practice, mental and written, in finding the fractional part that one number is of another, and in finding the whole of a number when a fractional part is given. Review constantly.

COMPLETE GRADED ARITHMETIC.

PART FIRST.

FOURTH GRADE — FIRST TERM.

To the Teacher. — Before assigning this lesson, teach addition of denominate numbers, and division when the divisor is less than 10. Show that when several numbers are connected by the signs of addition and subtraction, as in the fourth example, the work is to be done in order as indicated by the signs.

LESSON 1. 1. Express in words 4354.

2. Multiply 456326 by 6. 3. 5478906 ÷ 2.

4. Simplify $486 - 194 + 245 - 89 + 587 - 283 + 785$.

5. Find the difference between 76042 and 72816.

6. Find the cost of 264 sheep at $6 a head.

7. Add 6798, 3748, 9584, 7362, 4758, 3849, and 7485.

8. Find the difference between 42786 and 48654.

9. At $9 a head, how many sheep can be bought for $1215?

10. A man traveled 478 miles by rail, 386 miles by stage, and 95 miles on foot. How far did he travel?

11. A farmer raised 436 bushels of potatoes and sold 378 bushels. How many bushels had he left?

12. Add seven hundred eighty-nine thousand sixty, seventy-eight thousand nine, and fifty-four thousand nine hundred eighty.

To the Teacher. — Teach how to express the product in such examples as the eleventh in Lesson 2.

LESSON 2. 1. Express in words 94075.

2. Divide 726084 by 3. 3. 531674 × 7.

4. From $435.08 take $176. 5. $246 – $74.86.

6. Add 268, 723, 432, 785, 496, 780, 947, and 345.

7. A man earns $1250 in a year and spends $775. How much does he save?

8. Simplify 768 + 354 – 168 – 243 + 784 – 186 + 628.

9. A man paid $1855 for seven acres of land. How much did it cost per acre?

10. How many barrels of flour, at $5 a barrel, cost $3925?

11. At $3.75 a pair, how much will six pair of shoes cost?

12. In an orchard there are 274 apple-trees, 168 pear-trees, 84 peach-trees, and 36 plum-trees. How many trees are there in the orchard?

To the Teacher. — In the solution of concrete problems require pupils always to mark the various results, showing what they represent. Especially is this desirable in those problems in which there is no question asked.

LESSON 3. 1. Express in words 880006.

2. Divide 7809604 by 4. 3. 758964 × 6.

4. Find the difference between 675408 and 681376.

5. Simplify 750 + 124 – 176 + 287 – 386 + 675 + 849.

6. Find the difference between 778684 and 771956.

7. Add 2345, 3452, 4523, 5234, 6789, 7896, and 8495.

8. Multiply four million five hundred eight thousand seventy-eight by four.

9. Add 8 gal. 3 qt. 1 pt., 3 gal. 2 qt. 1 pt., 5 gal. 1 qt. 1 pt., and 6 gal. 1 qt.

10. A has 1104 acres of land, which is six times as many acres as B owns. How many acres has B?

11. Harry went to the well for water twice, bringing 3 gal. 2 qt. the first time, and 4 gal. 3 qt. the second time.

12. Find the cost of seven barrels of apples at $2.65 a barrel.

13. A man paid $8750 for a store and $3250 less for a house. How much did he pay for both?

To the Teacher. — Teach how to express the multiplier and product in such examples as the eleventh in Lesson 4.

LESSON 4. 1. Express in words 503090.

2. Multiply 621498 by 8. 3. 76807485 ÷ 5.

4. From $785 subtract $279.56. 5. 307396 ÷ 4.

6. Simplify 784 − 357 + 245 − 124 + 843 − 279 + 485.

7. Add 7384, 4859, 789, 364, 58, 483, 2637, and 7896.

8. Add 4 yd. 2 ft. 3 in., 5 yd. 1 ft. 8 in., 6 yd. 2 ft. 10 in., 12 yd. 1 ft. 11 in., and 9 yd. 2 ft. 8 in.

9. A man sold some goods for $741, which was $186.48 more than they cost. Find the cost of the goods.

10. A man bought a carriage for $175, and a horse for $85 more than he paid for the carriage.

11. Find the cost of 2876 pounds of cheese at nine cents a pound.

To the Teacher. — Teach how to work such examples as the ninth and thirteenth in Lesson 5.

LESSON 5. 1. Multiply 74389 by 6.

2. Multiply 689547 by 6. 3. 64837 × 7.

4. Divide 6789480 by 2. 5. 29147784 ÷ 6.

6. Find the difference between 486500 and 427245.

7. Simplify 645 − 218 + 348 − 299 + 874 − 178 + 387.

8. Find the difference between 586389 and 679643.

9. At nine cents a quart, how many quarts of cherries can be bought for $14.85?

10. A man bought a house for $4350 and sold it for $5225.

11. At eight cents a quart, how much will 4275 quarts of berries cost?

12. A lady paid $6.75 for a hat and twice as much for a cloak. Find the cost of both.

13. A grocer sold soap at eight cents a cake, receiving $22 for it.

14. Add sixty thousand seven hundred ninety-eight, four hundred thousand four, and nine thousand eight hundred.

LESSON 6. 1. Express in words 70070.

2. Divide 815701278 by 3. 3. 324765 × 9.

4. Divide 2405922 by 6. 5. 786543 × 8.

6. From $400 subtract $.67. 7. $48 − $19.23.

8. Simplify 596 + 728 − 379 + 287 − 498 + 723 − 287.

9. Add 275, 432, 586, 743, 196, 842, 76, 58, and 478.

10. A man sold eight yards of silk at $5.85 a yard.

11. $752 is $186.42 greater than what sum?

12. At 7 cents a pound, how many pounds of sugar cost $60.55?

13. A man sold nine horses at the same price, receiving $2340 for them.

14. After a merchant had cut off 12 yd. 2 ft. from a piece of ribbon, there remained 8 yd. 1 ft. How many yards were there at first?

TO THE TEACHER.— Teach how to work such examples as the *seventh and* eleventh in Lesson 7.

LESSON 7. 1. Divide 76249620 by 4.

2. Divide 374685 by 5. 3. 37486 × 7.

4. Find the difference between 74645 and 243728.

5. What number added to 1276 will give 2154?

6. Find the difference between 487328 and 481639.

7. A man paid $37.20 for 8 tons of coal. What was the price per ton?

8. Multiply six million fifty-six thousand nine by seven.

9. Simplify 895 – 437 + 328 – 496 + 684 – 389 + 758.

10. Add 46 bu. 3 pk. 6 qt., 18 bu. 2 pk. 5 qt., 12 bu. 7 qt., and 9 bu. 2 pk. 5 qt.

11. A farmer sold six cows at a uniform price, receiving $279 for them.

12. A man sold a house for $4875 and lost $625. How much did he pay for it?

13. What cost 6874 pounds of sugar at 6 cents a pound?

LESSON 8. 1. Express in words 400400.

2. Multiply 784569 by 5. 3. $875.24 – $186.

4. Divide 452759080 by 5. 5. 786954 × 7.

6. 454 + 87 – 96 – 123 + 376 + 894 – 296 + 785.

7. Add 9584, 8473, 7362, 2637, 3748, 4859, and 5432.

8. Add 7 gal. 2 qt. 1 pt., 4 gal. 3 qt., 5 gal. 1 pt., 3 qt. 1 pt., 8 gal. 2 qt. 1 pt., and 5 gal. 2 qt.

9. Nine bushels of potatoes cost $7.65. What was the price per bushel?

10. A man bought a horse for $465 and sold it at a gain of $335. How much did he receive for it?

11. A has 165 sheep and B has eight times as many. How many have both?

12. A grocer bought 4784 pounds of sugar and sold 2978 pounds. How many pounds had he left?

LESSON 9. 1. Express in words 497008.

2. Multiply 7546839 by 8. 3. 78984564 ÷ 6.

4. Find the difference between 85431 and 123780.

5. Simplify $426 - 287 + 942 - 269 + 473 + 783 - 589$.

6. Add 2345, 3452, 4523, 5234, 6273, 7384, and 8495.

7. Find the difference between 218438 and 49265.

8. My house cost $5775, which is seven times as much as the lot cost. Find the cost of both.

9. A father gave his son $8725 and his daughter $1875 less. How much did he give to both?

10. A man has 46 bu. 1 pk. of wheat in one bin and 53 bu. 3 pk. in another bin. How much has he in both bins?

11. A man divided a sum of money equally among his six children, giving each one $475.

12. Add eight thousand eighty, ninety thousand nine hundred, seven hundred fifty-four thousand three, and four thousand seven hundred eighty-nine.

To the Teacher. — Teach subtraction of denominate numbers.

LESSON 10. 1. Express in words 65098.

2. Divide 45435607 by 7. 3. 748095 × 4.

4. Divide 843592 by 8. 5. 583497 ÷ 9.

6. From 9 gal. 2 qt. subtract 4 gal. 3 qt.

7. Add 268, 847, 98, 4368, 732, 869, 78, 857, and 645.

8. Simplify $589 - 296 + 87 - 189 + 786 + 685 - 249$.

9. A merchant bought flour at $6 a barrel, paying $3924 for it.

10. By selling a house for $4250, a man gained $475. How much did it cost?

11. A dealer bought 756 chests of tea at $9 a chest.

12. How many sheep, at $6 a head, cost $2520?

13. After a man had sold 758 bushels of wheat, he had 369 bushels left. How many bushels did he raise?

To the Teacher. — Show pupils that when several numbers are connected by the four signs, as in the fifth example in Lesson 11, the multiplications and divisions are to be performed first and then the *terms* united according to note in Lesson 1.

LESSON 11.

1. Express in words 509700.

2. Divide 7568592 by 8.

3. 576938×7.

4. Find the difference between 75437 and 240516.

5. Simplify $475 - 44 \times 6 + 246 - 168 \div 8 + 468$.

6. Find the difference between 412126 and 58274.

7. Add 8 yd. 2 ft. 7 in., 7 yd. 1 ft. 8 in., 6 yd. 11 in., 9 yd. 2 ft., and 6 yd. 1 ft. 7 in.

8. Multiply ninety million six hundred eight thousand seventy by nine.

9. A grocer bought nine barrels of flour at $4.85 a barrel.

10. A man has five farms, containing 468, 328, 164, 125, and 88 acres respectively. How many acres of land has he?

11. A grocer had 48 gal. 2 qt. of oil and sold 19 gal. 1 qt. 1 pt. How much had he left?

12. A man bought sugar at seven cents a pound, paying $18.55 for it. How many pounds did he buy?

LESSON 12.

1. Express in words 7700007.

2. Divide 698765472 by 9.

3. $4934562 \div 6$.

4. Multiply 546789 by 8.

5. $4862 – $475.50.

6. Divide 74587000 by 8.

7. 4897632×7.

8. Simplify $758 + 369 \div 9 + 147 \times 7 - 16 \times 7 + 475$.

9. Add $56.43, $48, $57.83, $69, $83.09, and $64.

10. $489.64 is $76 less than what sum?

11. Add 2637, 3748, 4859, 6475, 8293, 7896, and 3425.

12. Find the cost of 784 pounds of beef at 7 cents a pound.

13. A man bought flour for $3214 and sold it for $2716.

14. A man bought eight carriages at the same price, paying $2200 for them.

15. Add eighty-seven million six hundred thousand seventy, 637498, nine million eighty-six thousand thirty-seven, six hundred fifty-eight thousand nine hundred eighteen, 847659, and eighty-six thousand seven hundred fifty-four.

LESSON 13. 1. Express in words 90008070.

2. Divide 8760492540 by 6. 3. 42900004 ÷ 7.

4. Multiply 5468759 by 6. 5. 789564 × 8.

6. $453.68 is $265 more than what sum?

7. From 16 yd. 2 ft. 5 in. subtract 8 yd. 10 in.

8. Simplify $428 \times 7 - 464 \div 8 + 423 + 78 \times 9 - 279$.

9. How many quarts are there in 137 bushels?

10. Add 7485, 948, 3748, 637, 435, 6273, 485, and 8976.

11. A grocer sold eight barrels of potatoes at a uniform price, receiving $22 for them.

12. A man has 276 sheep in one field and 84 more in another field. How many sheep has he?

13. Add seven hundred thousand seven, 89476, nine thousand nine hundred ninety-nine, and six hundred seventy-eight thousand seven hundred seventy-six.

LESSON 14. 1. Express in words 5234164.

2. Divide 597830163 by 7. 3. 643528 × 7.

4. Divide 40789000 by 8. 5. $421 – $186.12.

6. Find the difference between 243750 and 82971.

7. Add 4675, 853, 9325, 2763, 732, 5428, and 79687.

8. Simplify $384 + 75 \times 9 + 16 \times 4 - 632 \div 8 + 593$.

9. Find the difference between 44265 and 121642.

10. At what price per pound will seven pounds of tea cost $4.55?

11. Each of seven boys has 148 marbles. How many have all?

12. What sum of money must be added to $285.38 to make $625?

13. A man paid $1250 for a lot and built a house on it costing five times as much as the lot.

14. A man bought 640 acres of land at $6 an acre. He sold 400 acres at $8 an acre and the remainder at $9 an acre.

LESSON 15. 1. Express in words 2002002.

2. Divide 23000751 by 9. 3. $768035552 \div 8$.

4. From $7265.42 subtract $728. 5. 74683×9.

6. Simplify $75 \div 3 + 168 - 9 \times 8 + 467 \times 8 - 958$.

7. 948 is 242 less than what number?

8. Add 9876, 8769, 7698, 6987, 2345, 3452, 4523, and 89.

9. Multiply seven million eight hundred sixty-nine thousand ninety-seven by five.

10. Add 48 bu. 2 pk. 6 qt., 79 bu. 3 pk. 5 qt., 54 bu. 7 qt., 43 bu. 2 pk., and 18 bu. 2 pk. 5 qt.

11. At $8 a yard, how much will 167 yards of silk cost?

12. A man bought a horse and carriage for $550, paying $165 for the horse.

13. A man paid $660 for a span of horses, which was four times as much as he paid for a carriage.

LESSON 16. 1. Express in words 1070200.

2. Divide 6847208127 by 9. 3. 954687 × 6.

4. Multiply 7894365 by 8. 5. $357 − $69.07.

6. From 16 bu. 2 pk. 5 qt. subtract 7 bu. 3 pk. 7 qt.

7. Simplify 287 ÷ 7 + 478 − 238 + 88 × 8 − 378.

8. Add $98, $68.47, $49, $57, $87.65, and $46.

9. At $3.55 apiece, what cost half a dozen hats?

10. At 8 cents a quart, how many quarts of berries cost $21.20?

11. If a man has $786 in his safe and $239.65 less in the bank, how much money has he?

12. At $8 apiece, how many books cost $3456?

13. I received $875 for a piece of land, which was $475 less than I paid for it. Find the cost.

LESSON 17. 1. Express in words 2300400.

2. Divide 354489594 by 6. 3. 7609805 × 7.

4. Find the difference between 40000 and 17432.

5. Simplify 268 × 8 + 246 − 98 + 87 × 6 − 198 ÷ 9.

6. Add 4859, 5948, 4837, 3726, 6273, 7384, and 8495.

7. Find the difference between 87543 and 216742.

8. From a piece of ribbon containing 26 yd. 2 ft., a merchant sold 19 yd. 2 ft. 6 in.

9. A dealer sold cheese at 8 cents a pound, receiving $36.64 for it. Find the number of pounds sold.

10. A piece of land that cost $1500 was sold at a profit of $4500. How much was received for it?

11. At eight cents a quart, what is the value of six bushels of chestnuts?

12. Add four hundred fifty-eight thousand nineteen, 789456, seventy-eight thousand ninety, 286327, and seven hundred thousand eighty-eight.

LESSON 18. 1. Express in words 94068004.

2. Divide 693098623 by 7. 3. $4563 – $78.21.

4. Multiply 458936 by 9. 5. 49876830 ÷ 9.

6. Add 15462, 7587, 46324, 3427, 43265, 4873, and 3748.

7. Simplify $985 \div 5 + 432 - 126 - 95 + 47 \times 8 + 478$.

8. Add 7 gal. 3 qt. 1 pt., 9 gal. 1 pt., 8 gal. 3 qt. 1 pt., and 6 gal. 3 qt.

9. How many acres of land, at $9 an acre, cost $1998?

10. A man traveled 154 miles by boat and nine times as far on the cars. How far did he travel?

11. A farmer sold six cows at a uniform price, receiving $504 for them.

12. A man sold a piece of land for $1282 and gained $746. How much did it cost?

LESSON 19. 1. Express in words 6007040.

2. Divide 9918456 by 8. 3. $426 – $98.43.

4. From 12 gal. 1 pt. subtract 7 gal. 2 qt.

5. $246 + 75 - 125 \div 5 + 267 \times 7 + 216 \div 6$.

6. Add 3726, 2648, 4859, 6273, 7384, 8495, and 4523.

7. Multiply eight hundred seventy-nine thousand six hundred fifty-eight by eight.

8. Add 8 gal. 3 qt. 1 pt., 7 gal. 2 qt., 8 gal. 1 qt. 1 pt., 7 gal. 1 pt., and 9 gal. 3 qt.

9. A farmer sold 248 sheep, lost 73, and had 649 left. How many had he at first?

10. At what price will nine books cost $14.85?

11. A farmer put his wheat into nine bins, putting 468 bushels into each bin. How many bushels did he have?

12. Land that cost $2116 was sold at a loss of $468. How much was received for it?

TO THE TEACHER. — Teach multiplication of denominate numbers.

LESSON 20. 1. Express in words 3204009.

2. Divide 758642 by 9. 3. 75649 × 7.

4. Divide 326459 by 7. 5. 79658 × 8.

6. Find the difference between 765008 and 763413.

7. Multiply 7 gal. 3 qt. 1 pt. by 5.

8. 364 × 7 − 243 + 674 − 539 ÷ 7 + 428 × 6.

9. Add $86, $240.08, $75, $9.45, $875, and $97.35.

10. Find the difference between 412324 and 413211.

11. Each of seven barrels contains 24 gal. 3 qt. 1 pt. of oil. How much do all contain ?

12. Twelve hundred fifty-four dollars is $658 more than what sum ?

13. A grocer sold eight gallons of molasses at a uniform price, receiving $7.60 for it.

14. A merchant's sales were $476 Monday, $458.65 Tuesday, $516.84 Wednesday, and $495 Thursday. Find the amount of his sales for the four days.

TO THE TEACHER. — Teach the signification and use of the parenthesis and vinculum.

LESSON 21. 1. Express in words 8093704.

2. Multiply 7839584 by 8. 3. 765 − 168 + 149.

4. Multiply 7458073 by 9. 5. 765 − (168 + 149).

6. Divide 4019436 by 6. 7. $742 − $187.43.

8. Multiply 8 yd. 2 ft. 7 in. by 4.

9. A farmer sold 176 sheep at $7 a head.

10. A has $385, which is $42.75 less than B has. How much have both ?

11. A man divided $70.65 equally among nine boys. How much did each receive ?

12. A man has $38.75. How much more must he have to buy a carriage for $135?

13. Add seventy-five thousand six hundred nine, four hundred eighty-seven thousand ninety-seven, 783586, and five thousand seven.

LESSON 22.

1. Express in words 7640028.

2. Divide 6000008 by 7.

3. $489 - 98 - 75$.

4. Divide 43105000 by 8.

5. $489 - \overline{98 - 75}$.

6. From 46 yd. 1 ft. 4 in. subtract 28 yd. 2 ft. 9 in.

7. Add 45376, 75438, 87456, 8527, 4375, 6543, and 754.

8. A man had 635 acres of land and sold 286 acres.

9. A lady bought seven pair of gloves at $1.75 a pair.

10. Multiply forty million seven hundred sixty-eight thousand nine hundred eight by seven.

11. A farmer sold sheep at $7 a head, receiving $1925 for them.

12. A miller sold 468 barrels of flour to one man, 545 to another, 278 to another, and had 895 barrels left. How many barrels had he at first?

LESSON 23.

1. Express in words 68405007.

2. Divide 67925992 by 8.

3. 2786549×6.

4. Find the difference between 32750 and 245865.

5. Simplify $964 - 28 \times 4 - (76 + 247) + 186 + 89 \times 9$.

6. At $8 apiece, how many books cost $1440?

7. Find the difference between 168458 and 76459.

8. Add 2637, 3748, 4859, 5926, 6789, 7896, and 8967.

9. Add 16 yd. 2 ft. 4 in., 27 yd. 11 in., 19 yd. 2 ft. 9 in., 24 yd. 2 ft., 18 yd. 1 ft., and 16 yd. 8 in.

10. A boy raised 785 quarts of strawberries, which he sold at nine cents a quart.

11. How much must be added to 43 bu. 2 pk. 6 qt. to make 62 bu. 1 pk.?

12. At eight cents a quart, how many quarts of strawberries cost $14?

13. A farmer raised 986 bushels of wheat, 648 bushels of corn, 845 bushels of oats, and 86 bushels of rye. How many bushels of grain did he raise?

LESSON 24.

1. Express in words 4008090.

2. Divide 5048082 by 9.

3. 7086047 × 6.

4. 4268 is 792 less than what number?

5. Simplify $785 \div 5 - 18 \times 4 + 427 \div 7 - \overline{217 - 89}$.

6. Add $5.43, $.78, $6.67, $7.09, $.58, $7.86, and $84.

7. Find the difference between $465.72 and $975.

8. Add 5432, 4325, 3254, 2543, 8967, 9678, and 6789.

9. A man sold five houses, each for the same sum, receiving $32500 for them.

10. I paid $375 for a horse and $185 less for a carriage.

11. A merchant bought eight pieces of ribbon, each piece containing 19 yd. 2 ft. 6 in.

12. A man sold a farm for $7525 and lost $1275. How much would he have received for it, if he had gained $2475?

LESSON 25.

1. Express in words 98070800.

2. Divide 48769325 by 5.

3. 7849378 × 7.

4. From 57 bu. subtract 29 bu. 2 pk. 6 qt.

5. How many pints are there in 169 gallons?

6. $46 \times 9 - (84 - 67) - 95 + 78 + 78 \times 8 - 148 \div 4$.

7. Add 6273, 7384, 8495, 478, 936, 275, 4859, and 634.

8. Multiply 7 bu. 2 pk. 5 qt. by 5.

9. A merchant sold six pair of shoes at the same price, receiving $27 for them.

10. A grocer made a profit of $76.85 on tea and coffee which he sold for $342. How much did it cost?

11. A lady spent $7.50 for a hat, $24 for a dress, $16.25 for a cloak, $1.75 for gloves, and had $43.65 left.

12. Add sixty million sixty thousand sixty, 8479, nine hundred thousand nine hundred eighty-four, 86458, and seven million seven thousand seven.

LESSON. 26.

1. Express in words 123000049.

2. Divide 5874390 by 6.

3. 4897654 × 8.

4. Find the difference between 72068 and 465234.

5. $487-156-9\times 8+545-\overline{460-375}+738$.

6. Add 642875, 75458, 386372, 9496, 42652, and 378487.

7. Find the difference between 40607 and 120903.

8. Multiply eight million six hundred fifty-seven thousand sixty-four by nine.

9. A dealer sold to each of eight men 365 barrels of flour. How many barrels did he sell?

10. Goods that cost $1246 were sold at a loss of $472. How much was received for them?

11. A lady bought six pair of gloves for $5.28. What was the price of each pair?

12. A man paid $4500 for a house and $3275 more for a farm. How much did he pay for both?

LESSON 27.

1. Express in words 98096094.

2. Multiply 4576893 by 8.

3. 49654892 ÷ 7.

4. Find the difference between $982 and $438.63.

5. $823 is $145.28 greater than what sum?

6. 238 – 8 × 9 – 108 ÷ 9 + 754 – (84 – 58) – 47 × 8.

7. A man bought 275 acres of land at $8 an acre.

8. How many papers, at 7 cents apiece, cost $5.95?

9. Add 3647, 489, 845, 362, 4859, 7384, 465, and 8697.

10. Harry has 145 marbles, which is 48 less than his brother has. How many have both?

11. A man earns $38 a week, which is eight times as much as his son earns. How much do both earn?

12. Add 7 bu. 1 pk. 7 qt., 9 bu. 6 qt., 8 bu. 3 pk. 5 qt., 6 bu. 1 pk., 14 bu. 3 pk. 7 qt., and 16 bu. 6 qt.

LESSON 28. 1. Express in words 7800008.

2. Divide 7956984 by 8. 3. 9876054 × 7.

4. Divide 68741532 by 9. 5. 8435479 × 8.

6. From 34 gal. 2 qt. subtract 9 gal. 3 qt. 1 pt.

7. Add $485, $96.14, $.85, $9.87, $74.50, and $558.

8. 875 – (265 – 18 × 8) – 144 ÷ 6 + 789 + 138 × 8.

9. Add 364758, 67945, 7384, 849, 58, 746, and 8495.

10. At 4 cents a pound, how many pounds of sugar will cost $180?

11. How much money added to $365 will make $724.35?

12. If each of nine men dig 18 bu. 3 pk. of potatoes, how many will all dig?

13. My carriage cost $275 and my horses three times as much. Find the cost of both.

LESSON 29. 1. Express in words 4058000.

2. Divide 4863456 by 9. 3. 7860495 × 7.

4. Find the difference between 201096 and 503072.

5. Multiply 36 gal. 2 qt. 1 pt. by 4.

6. 473 + 348 – (188 – 144 ÷ 4) + 278 × 6 – 486.

7. Add 62738, 37485, 4859, 9584, 8473, 635, and 749.

8. Find the difference between 402017 and 705004.

9. A man worked eight days and received $1.85 a day.

10. Nine tons of coal cost $43.65. What was the price per ton?

11. A man lost $975 on his farm, which he sold for $6250. How much did it cost?

12. From a barrel containing 45 gal. 3 qt. of oil a grocer sold 28 gal. 2 qt. 1 pt.

13. Add sixty million six hundred thousand nine, 87948, four hundred eighty-five thousand nine hundred fifty-four, 78694, and five million five thousand five.

To the Teacher. — Teach division of denominate numbers.

LESSON 30.

1. Express in words 17019018.

2. From $685.40 take $396.

3. 45876544 ÷ 8.

4. Divide 9 gal. 2 qt. by 4.

5. 785694 × 9.

6. Add 4732463, 589747, 68495, 3927, 698, 87, and 745.

7. $567 - \overline{274 - 18 \times 9} + 48 \times 7 + 168 - (784 - 247)$.

8. Multiply nine million eight thousand seven hundred seven by seven.

9. At 8 cents a yard, how many yards of muslin cost $12?

10. Add 16 yd. 2 ft. 7 in., 9 yd. 1 ft., 24 yd. 10 in., and 18 yd. 2 ft. 8 in.

11. At five cents a quart, how much will 86 gallons of milk cost?

12. If a man's income is $2648 and he spends $1468.23, how much does he save?

13. A man divided 12 gal. 1 qt. 1 pt. of milk equally among nine poor families. How much did each receive?

LESSON 31. 1. Express in words 7600000.

2. Multiply 7689534 by 6. 3. 587698×7.

4. Divide 18 bu. 1 pk. 6 qt. by 5.

5. From 42 yd. 2 ft. 4 in. subtract 17 yd. 1 ft. 8 in.

6. Simplify $892 + 12 \times 9 - 84 \div 6 + 495 - \overline{176 - 14 \times 9}$.

7. Add 84726, 49538, 6273, 9587, 374, 658, and 73659.

8. Add 16 gal. 2 qt. 1 pt., 9 gal. 1 qt. 1 pt., 7 gal. 3 qt., 4 gal. 1 pt., and 3 gal. 2 qt. 1 pt.

9. If A has 168 acres of land and B has nine times as much, how many acres have both?

10. A man bought fruit for $876.75 and sold it at a gain of $188.48.

11. A merchant cut a piece of ribbon containing 17 yd. 1 ft. into eight pieces of equal length.

12. A farmer raised 734 bushels of corn in one field and 268 bushels less in another field. How many bushels did he have?

LESSON 32. 1. Express in words 495000000.

2. Divide 7658904 by 6. 3. 684973×9.

4. Find the difference between 78647 and 243854.

5. $764 - (245 - 465 \div 5) - 14 \times 7 + 789 - 540 \div 9$.

6. Add $.64, $86.14, $543.76, $48, $7.78, and $247.53.

7. Find the difference between 401028 and 504006.

8. Add 637, 389, 4859, 7384, 6354, 876, 749, and 3745.

9. A man sold his farm for $8250, which was $1625 more than he paid for it. Find the cost.

10. A lady bought four yards of silk, paying $3.76 for it. What was the price per yard?

11. If a man sells 8 gal. 3 qt. 1 pt. of milk each day of the week except Sunday, how much does he sell during the week?

12. If a young man spends $265 of his yearly salary for board, $180 for clothes, $75 for other expenses, and saves $680, how much is his salary?

LESSON 33. 1. Express in words 2020200.

2. Subtract $42.78 from $521. 3. 745986 × 7.

4. Multiply 42 yd. 8 in. by 6. 5. 412536 ÷ 8.

6. Divide 31 yd. 2 ft. 8 in. by 4.

7. 7468 is 1268 less than what number?

8. $890 + 87 \times 7 - \overline{128 + 11 \times 9} + 436 - 427 \div 7.$

9. Add 9876, 8769, 7698, 6987, 8473, 7395, and 4826.

10. A man sold berries at 6 cents a quart, receiving $27 for them.

11. A man bought land for $12452 and sold it for $11876.

12. A man divided a sum of money equally among seven poor children, giving each one $4.75. How much did he give to all?

13. Add four hundred eight million seventy thousand six, 687985, seventy thousand five hundred seven, 8643, and sixty-five thousand four hundred ninety-seven.

LESSON 34. 1. Express in words 450000045.

2. Divide 6084708 by 7. 3. 765894 × 8.

4. 4000 is 245 greater than what number?

5. From 72 bu. 2 pk. 6 qt. subtract 28 bu. 3 pk.

6. $748 - (560 \div 8 - 28) - 256 \div 4 + 584 - 43 \times 7.$

7. Add 458732, 95478, 8795, 648, 5432, 87328, and 6974.

8. At $9 a head, what is the value of 268 sheep?

9. How many pencils, at $.04 apiece, cost $19?

10. Multiply eighty-seven million eighty-nine thousand eighty-six by seven.

11. A man sold 8 barrels of apples at the same price, receiving $26 for them.

12. If a farmer receives $1264 for his wheat and $286 more for his potatoes, how much does he receive for both?

LESSON 35.

1. Express in words 7007007.

2. Multiply 468954 by 7. 3. 546789 × 8.

4. Find the difference between 106009 and 203008.

5. Divide 53 gal. 1 qt. 1 pt. by 7.

6. $(\overline{64 \div 8} \times 9) \div 4 + 742 - (126 + 72 \div 6) + 753.$

7. Add 7362, 2637, 3748, 7384, 8473, 4859, and 9584.

8. Find the difference between 201208 and 107003.

9. Add 5 yd. 2 ft. 7 in., 8 yd. 1 ft. 9 in., 7 yd. 11 in., 9 yd. 2 ft., and 4 yd. 1 ft. 10 in.

10. A farmer sold his wheat for $476 and his potatoes for twice as much. How much did he receive for both?

11. At $.95 a bushel, how much will nine bushels of potatoes cost?

12. A man has 225 sheep. How many must he buy to have 372?

13. A man wishes to divide 14 bu. 3 pk. 4 qt. of potatoes equally among seven men. How many can he give to each?

LESSON 36.

1. Express in words 89258794.

2. Multiply 708976 by 8. 3. 7645032 ÷ 8.

4. Find the difference between $76 and $48.26.

5. Add $7.38, $45, $39.18, $.65, $4.45, $86, and $9.48.

6. $745 - \overline{49 \times 7 - 56} + 240 - (423 - 78).$

7. Add 2634, 3647, 4758, 9283, 8375, 2759, and 4837.

8. Divide 55 gal. 3 qt. 1 gi. by 7.

9. What cost 268 yards of muslin at six cents a yard?

10. Add 43 bu. 2 pk. 4 qt., 46 bu. 7 qt., 45 bu. 3 pk., 44 bu. 6 qt., and 32 bu. 2 pk. 4 qt.

11. A man bought two farms for $12650, paying $8675 for the better one.

12. A man traveled 2944 miles by boat, which was eight times as far as he traveled on the cars. How far did he travel?

LESSON 37. **1.** Express in words 8007090.

2. Multiply 74859 by 6. **3.** 312466 ÷ 7.

4. Divide 42 yd. 1 ft. 11 in. by 5.

5. Multiply 46 bu. 1 pk. 4 qt. by 6.

6. How many quarts are there in 164 pecks?

7. From 37 gal. subtract 18 gal. 2 qt. 1 pt.

8. $694 - (\overline{14 \times 9} \div 7) \times 5 + 78 \times 9 - (86 - 360 \div 9)$.

9. Add 7648, 5894, 6295, 7348, 4567, 3725, and 5984.

10. A butcher received $214 for beef, which he sold at eight cents a pound.

11. Harry earned $16 a month, and Frank earned $8.25 less. How much did both earn?

12. A man sold a house for $8650, which was $850 less than it cost. How much did it cost?

13. Add thirty million two thousand three hundred, 426243, four hundred million forty thousand four, 563478, and sixty million nine.

LESSON 38. **1.** Express in words 146000004.

2. Divide 6870231 by 9. **3.** 587639 × 9.

4. Find the difference between 401408 and 500607.

5. $(270 \times 6) \div 9 - 84 \div 7 - \overline{56 \div 7 + 42} + 736$.

6. Multiply seven hundred sixty thousand eighty by nine.

7. Add 485763, 278456, 94875, 6948, 672597, and 42843.

8. Find the difference between 87465 and 565869.

9. Seven yards of silk cost $32.76. What was the price per yard?

10. At $6 apiece, how many hats cost $510?

11. A dealer bought coal for $4865 and sold it at a profit of $986.75.

12. John has a cord 16 yd. 2 ft. 8 in. long. How much must he add to it to make it 24 yards long?

13. A merchant sold seven pieces of silk, each piece containing 28 yd. 1 ft. 6 in.

LESSON 39. 1. Express in words 70070070.

2. Multiply 8953267 by 6. 3. 7865634 × 8.

4. Divide 3746526 by 7. 5. 76485 × 9.

6. $685 is $455 less than what sum?

7. Divide 143 bu. 2 pk. 4 qt. by 4.

8. Find the difference between $78.92 and $432.

9. $(420 \div 6) \times 9 - 128 + 463 - (245 - 24 \times 6)$.

10. Add 5 bu. 3 pk. 7 qt., 4 bu. 2 pk. 5 qt., 3 bu. 1 pk., 2 bu. 6 qt., and 8 bu. 3 pk. 5 qt.

11. A man sold nine bushels of potatoes at the same price, receiving $8.55 for them.

12. A man divided a sum of money among his eight clerks, giving each $125. How much did he give to all?

13. A miller sold flour for $2453 and gained $516.60. How much did he pay for it?

LESSON 40. 1. Express in words 40200000.

2. Divide 45059442 by 6. 3. 68079045 × 8.

4. Divide 4736528 by 8. 5. 649378 × 9.

6. Add $375, $8.75, $.89, $76.43, $458, and $74.48.

7. Subtract 19 yd. 2 ft. 10 in. from 47 yd. 2 ft.

8. $864 - (\overline{72 \div 6} \times 3) \div 4 + 438 - \overline{74 - 240 \div 6}$.

9. Add 6273, 7384, 8495, 5948, 4837, 3759, and 7486.

10. A farmer sold 366 sheep at seven dollars a head.

11. John earns $45 a month, which is $85 less than his father earns. How much do both earn?

12. A lady paid $8.70 for muslin, which she bought at six cents a yard.

13. Goods that cost $742 were sold at a loss of $153.28. How much was received for them?

LESSON 41. 1. Express in words 4006009.

2. Divide 62 gal. 1 pt. by 7. 3. 479568 × 7.

4. Find the difference between 460507 and 5030204.

5. $916.42 is $168.64 more than what sum?

6. Multiply 18 gal. 1 pt. by 8.

7. $435 - (\overline{185 \div 5} \times 6 - 135) + (\overline{48 \div 6} \times 9) \div 3 - 84$.

8. Find the difference between 208094 and 6007080.

9. Add 4563, 2849, 4856, 6273, 3784, 7968, and 4639.

10. A farmer sold 8 barrels of apples at $3.35 a barrel.

11. If a merchant sells 111 yards of silk in equal parts to six ladies, how much does each buy?

12. A man has $758.64 in his safe and three times as much in the bank. How much money has he?

13. Add six million six thousand six, four hundred twelve million ninety thousand, 78937, five hundred nineteen, 483284, and sixty million four.

LESSON 42. 1. Express in words 19017018.

2. From $695 take $287.89. 3. 6473985 × 7.

4. 698 is 476 less than what number?

5. $(\overline{15 \times 9} \div 5) \times 8 + 728 - (174 - 14 \times 8) + 148$.

6. Multiply five million seventy-five thousand six hundred seventy-eight by nine.

7. Add 35432, 67587, 358423, 35798, 8746, and 7569.

8. What sum must be added to $386.42 to make $745?

9. A lady bought seven chairs at the same price, paying $103.25 for them.

10. A grocer bought of each of eight farmers 26 bu. 3 pk. of potatoes. How many did he buy of all?

11. How many pounds of sugar, at $.08 a pound, cost $44?

12. A man sold land for $4682 and lost $1218. How much would he have received for it, if he had gained $2100?

LESSON 43. 1. Express in words 8090080.

2. Multiply 368945 by 8. 3. 654798 × 7.

4. Divide 50 yd. 2 ft. 10 in. by 7.

5. From 45 bu. 3 pk. 3 qt. subtract 16 bu. 7 qt.

6. $746 + (35 \times 4 \div 7) \times 9 - 248 - \overline{146 - 57} + 847$.

7. Add 3547, 2659, 8473, 5948, 6935, 2957, and 6897.

8. Add 3 gal. 2 qt., 5 gal. 1 qt. 1 pt., 4 gal. 1 pt., 9 gal. 3 qt., and 5 qt. 1 pt.

9. A man sold 7 bushels of berries at 8 cents a quart.

10. If nine times my money equals $706.05, how much money have I?

11. A man sold a house for $9800 and lost $2200. How much did he pay for it?

12. A lady bought a dress, hat, and shoes for $59, paying $8.75 for the hat.

LESSON 44. 1. Express in words 4787555.

2. Divide 3896472 by 8. 3. 768954 × 9.

4. Find the difference between 95407 and 348709.

5. Add $8.47, $16.24, $.78, $7.56, $47, $.67, and $8.64.

6. $548 - \overline{243 - 420 \div 6} + 87 + (16 \div 2) \times 8$.

7. Find the difference between 60704 and 6040503.

8. Add 6789, 7896, 8967, 9678, 2345, 3452, and 4523.

9. If there are 265 leaves in one book, how many leaves are there in six books of the same size?

10. A house that cost $4648 was sold at a gain of $852. How much was received for it?

11. A man sold oranges at five cents apiece, receiving $6.75 for them.

12. The number of boys in a school is 543, which is 168 less than the number of girls. How many pupils are there in the school?

LESSON 45. 1. Express in words 6000070.

2. Multiply 74659 by 8. 3. 639786×7.

4. Find the difference between $65.65 and $4565.

5. Divide 259 bu. 1 pk. 2 qt. by 6.

6. Multiply 16 yd. 9 in. by 4.

7. $489 - 123 + (21 \times 6) \div 7 - \overline{79 - 350 \div 5} + 458$.

8. Add 28 gal. 3 qt. 1 pt., 36 gal. 1 pt., 25 gal. 2 qt., 3 qt. 1 pt., and 24 gal. 2 qt. 1 pt.

9. At five cents apiece, how many pencils cost $16?

10. Each of nine men gave $685 to build a church. How much did all give?

11. A man sold eight sheep at a uniform price, receiving $62 for them.

12. A man sold a store for $9750, which was $1825 more than he paid for it. Find the cost.

13. Add nine million nine, 745368, eighty thousand seventy, 245876, sixty million two hundred nine, and 97483.

LESSON 46. 1. Express in words 3003030.

2. Divide 70748523 by 9. 3. 645897 × 7.

4. From 34 gal. 3 qt. subtract 15 gal. 1 pt.

5. $(427 \div 7) \times 9 + 478 - (148 - 7 \times 6) + 43 \times 9$.

6. Add 36456, 87597, 42569, 57893, 62569, and 79687.

7. Multiply forty million fifty-six thousand seven hundred sixty-nine by nine.

8. At $.96 a yard, what cost nine yards of ribbon?

9. Eight pounds of tea were sold for $5.44. What was the price per pound?

10. I bought apples for $468 and sold them for $542.65.

11. A lady paid $5.75 for a pair of shoes, and six times as much for a cloak. How much did she pay for both?

12. In a certain village there are 875 men, 268 more women than men, and as many children as men and women together. What is the population of the village?

LESSON 47. 1. Express in words 97019009.

2. Multiply 876589 by 7. 3. 645328 × 8.

4. Find the difference between 756482 and 759208.

5. Divide 119 gal. 3 qt. 1 pt. by 7.

6. $285 - \overline{56 - 408 \div 8} + 13 \times 8 + 437 - 56 \div 7$.

7. Find the difference between 607909 and 20500708.

8. Add 2 ft. 7 in., 8 yd. 1 ft., 7 yd. 10 in., 3 yd. 2 ft. 9 in., 9 yd. 9 in., 1 ft. 7 in., and 4 yd. 11 in.

9. A grocer bought sugar at six cents a pound, paying $900 for it.

10. In each of nine cans there is 9 gal. 3 qt. 1 pt. of milk. How much is there in all the cans?

11. How much must be added to 48 bu. 6 qt. to make 65 bu. 2 pk. 4 qt.?

12. A man has 238 acres in one farm and four times as many acres in another. How many acres of land has he?

LESSON 48.

1. Express in words 6000004.

2. Divide 63744624 by 8.   3. 786549 × 6.

4. Add $45, $7.68, $.57, $16.42, $5.48, $64, and $9.85.

5. Find the difference between $438 and $4624.35.

6. $765 is $98.44 less than what sum?

7. $(\overline{42 \times 9} \div 7) \times 8 - 64 + 276 - \overline{12 \times 9 - 93 + 7 \times 6}$.

8. Add 6273, 7384, 6284, 8495, 7456, 9845, and 6938.

9. A dealer sold 7846 pounds of cheese at 9 cents a pound.

10. A man divided 5 bushels of apples equally among eight boys. How many did each receive?

11. A farmer received $746 for his wheat and $185.72 less for his potatoes. How much did he receive for both?

12. A man has $465 in one bank and three times as much less $146.84 in another. How much has he in both?

To the Teacher. — Teach multiplication when the multiplier is greater than 10.

LESSON 49.

1. Express in words 2200000.

2. Multiply 36482 by 26.   3. 3725 × 46.

4. Multiply 18 bu. 4 qt. by 4.   5. 36027 × 35.

6. Divide 369 yd. 1 ft. 8 in. by 8.

7. How many pints are there in 286 gallons?

8. From 24 yd. 1 ft. 2 in. subtract 8 yd. 2 ft. 7 in.

9. $(\overline{35 \times 8} \div 5) \times 6 + 248 - (72 - 8 \div 4 + 6 \times 5)$.

10. I lost $475 on a farm, which I sold for $2875. How much did I pay for it?

11. Nine barrels of flour cost $61.65. What was the price per barrel?

12. A father gave his son $8225, which was $1475 more than he gave his daughter. How much did he give to both?

13. Add four hundred million fifty, 48763, eight million eight, 9457, seventy thousand, 643875, ninety million seven thousand, and 4138246.

To the Teacher. — Teach how to find fractional parts of numbers.

LESSON 50.

1. Express in words 7005060.
2. Divide 620738883 by 9.
3. 78546 × 37.
4. Find $\frac{3}{4}$ of 9600.
5. 45130 × 28.
6. Find $\frac{4}{5}$ of 47365.
7. 40735 × 54.
8. Find the difference between 406803 and 40200602.
9. Add 432765, 97493, 624527, 68763, 5798, and 847695.
10. $(\overline{147 \times 6} \div 7) \times 4 - 81 \div 3 - \overline{8 \times 7 - 28} + 16 \times 5.$
11. Find the difference between 8207028 and 70605081.
12. Multiply sixty million seventy thousand eight hundred seventy-six by eight.
13. A man bought land for $3245 and sold it for $2866.
14. A man divided his money among his eight children, giving each one $8750.
15. A man bought sheep for $986 and sold them at a profit of $264.
16. A man gave his son $390, which was eight times as much as he gave his daughter. How much did he give to both?

FOURTH GRADE — SECOND TERM.

LESSON 1. 1. Multiply 34827 by 23.

2. Divide 74634 by 7. 3. 47532 ÷ 6.

4. Multiply 46743 by 24. 5. 5237 × 26.

6. Multiply 74685 by 34. 7. 92647 × 37.

8. Find $\frac{4}{5}$ of $7845. 9. Find $\frac{3}{4}$ of 7500.

10. Find the difference between 58756 and 59413.

11. Find the cost of 228 acres of land at $43 an acre.

12. Add 7 gal. 2 qt. 1 pt., 8 gal. 1 pt., 5 gal. 3 qt., and 4 gal. 1 qt. 1 pt.

13. Find the difference between 78000 and 76209.

14. A man sold $\frac{2}{3}$ of a flock of 375 sheep at $4 a head. How much did he receive for them?

15. Add nineteen million seventy thousand eight hundred, four hundred ninety-five thousand six, 748634, and seven million sixty thousand seventy.

TO THE TEACHER. — Teach how to multiply when the multiplier is partly fractional. Teach also how to find the area of rectangular surfaces. Present this objectively, and be sure that pupils clearly understand the process.

LESSON 2. 1. From $432 subtract $87.42.

2. Divide 1608012 by 9. 3. 287931 ÷ 7.

4. Multiply 48932 by 32. 5. 8574 × 35.

6. At $9 a head, how many sheep cost $1233?

7. Add 7463, 857, 6475, 568, 2945, 756, 847, and 738.

8. How many square inches are there in a piece of paper 38 inches long and 9 inches wide?

9. How many square inches are there in a piece of paper 18 feet long and 8 inches wide?

10. A farmer raised 856 bushels of potatoes and sold 478 bushels. If he sells the remainder at $.65 a bushel, how much will he receive for them?

11. How many square feet are there in a floor 18 feet long and 14½ feet wide?

12. A man raised 624 bushels of wheat and sold ⅜ of it at 85 cents a bushel.

To THE TEACHER. — Teach reduction descending.

LESSON 3. 1. Reduce 1218 feet to yards.

2. Multiply 53987 by 18. 3. 46750 × 26.

4. Reduce 45 square feet to square inches.

5. Simplify $79 - 48 \div 6 + 8 \times 9 - (18 - 24 \div 3)$.

6. Find the difference between 1230075 and 1221096.

7. From 19 bu. 3 pk. subtract 7 bu. 1 pk. 4 qt.

8. Find the difference between 1431267 and 1432000.

9. Reduce 7 sq. yd. 5 sq. ft. 74 sq. in. to square inches.

10. Find three-sevenths of 16 gal. 2 qt. 1 pt.

11. Find the cost of 356 barrels of potatoes at $3.65 a barrel.

12. How many square yards are there in a floor 18 feet long and 15½ feet wide?

13. A boy sold six bushels and two pecks of chestnuts at 15 cents a quart. How much did he receive for them?

To THE TEACHER. — Teach reduction ascending.

LESSON 4.

1. Find $\frac{5}{6}$ of 4710.

2. Multiply 78543 by 18. **3.** 46500 × 28.

4. Divide 233350 by 5. **5.** 425346 ÷ 6.

6. Reduce 129 pints to quarts and gallons.

7. Add $74, $487.65, $.95, $72.68, $258, and $73.84.

8. Find the cost of 8 rods of wire at two cents a foot.

9. Reduce 175 dry quarts to higher denominations.

10. A man bought 7 acres of land, paying $1862 for it. Find the cost per acre.

11. A man earns $2850 in a year and spends $975.

12. A room is 18 feet square. How many square feet are there in the ceiling?

13. Add two hundred four million seven thousand forty, eight million two hundred nine thousand six hundred ninety-five, 487635, and seventy-eight million nine hundred.

To the Teacher. — Teach how to express the remainder in division when the division is not exact.

LESSON 5.

1. Divide 3864752 by 7.

2. Multiply 48053 by 26. **3.** 49376 × 48.

4. Add 74635, 8492, 657, 465, 7362, 3748, and 94756.

5. Add 9 yd. 2 ft. 7 in., 8 yd. 5 in., 7 yd. 2 ft., 1 ft. 9 in., and 5 yd. 1 ft. 4 in.

6. Find the difference between 4325467 and 4330000.

7. Reduce 1872 square feet to square yards.

8. Find the cost of 208 sheep at $3.75 a head.

9. How many square inches are there in 14 sq. ft.?

10. Find the difference between 5430120 and 5423468.

11. How many acres of land, at $5 an acre, cost $4725?

12. What is the area of a piece of ground 145 feet long and 43 feet wide?

13. There are 414 trees in an orchard $\frac{8}{9}$ of which are apple-trees and the remainder pear-trees.

To the Teacher. — **Always require pupils to mark the various results in the solution of concrete problems to show what they represent.**

LESSON 6. **1.** Find $\frac{3}{8}$ of 37 yd. 1 ft.

2. Divide 122432 by 3. **3.** 683065 ÷ 7.

4. Multiply 470235 by 28. **5.** 3927 × 34.

6. Reduce 8 rods 9 feet 7 inches to inches.

7. Find the difference between $75.86 and $512.

8. Add 6473, 8239, 7435, 4893, 9875, 3678, and 8476.

9. $648 + 59 \times 4 - 96 \div 8 - (\overline{9 \times 8} \div 6 + 475)$.

10. Reduce 242 dry quarts to higher denominations.

11. A man paid $7800 for a store and $1400 less for a house. Find the cost of both.

12. A has 1110 acres of land, which is six times as many acres as B has. How many acres have both?

13. How many square feet are there in a floor six yards long and 14 feet wide?

LESSON 7. **1.** What number is $\frac{5}{7}$ of 2849?

2. Multiply 40987 by 34. **3.** 58294 × 52.

4. Find the difference between 7438654 and 7440000.

5. Add $64.37, $.85, $5.83, $75, $9.87, $56, and $746.

6. How many ounces are there in seventeen pounds?

7. Find the difference between 2461235 and 2457689.

8. How many bushels are there in 680 pecks?

9. From 22 gal. 2 qt. 3 gi. subtract 9 gal. 1 qt. 1 pt.

10. At 28 cents a pound, what cost 6500 pounds of wool?

11. A man paid $235 for a horse and $115 more for a carriage. Find the cost of both.

12. How many square inches are there in a board 8 feet long and 9 inches wide?

13. Add nine million nine thousand ninety, seventy million eight hundred four thousand six hundred, 586352, and seven hundred six thousand four hundred ninety.

LESSON 8. 1. Multiply 64837 by 74.

2. Divide 3131641 by 4. 3. 599363 ÷ 8.

4. Multiply 27638 by 56. 5. 6879 × 85.

6. Add $68, $6.42, $125.28, $.75, $74.86, and $67.52.

7. Reduce 7 gal. 3 qt. 1 pt. 3 gi. to gills.

8. Add 2637, 3748, 4859, 6273, 7384, and 84957.

9. A man paid $\frac{3}{5}$ of $625 for a span of horses and the remainder for a carriage. Find the cost of each.

10. A man sold land for $1875, which was $268.75 more than he paid for it.

11. Reduce 225 liquid pints to higher denominations.

12. A man sold flour at $4 a barrel, receiving $3148 for it. How many barrels did he sell?

13. How many square yards are there in a lawn 36 yards long and 26 yards 1 foot wide?

To the Teacher.—Teach how to write the multiplier when there are one or more ciphers at the right. When the multiplier is 1 with ciphers annexed, teach pupils to write the product by annexing ciphers to the multiplicand.

LESSON 9. 1. Find $\frac{2}{9}$ of 24 bu. 1 pk. 7 qt.

2. Multiply 4530768 by 45. 3. 786 × 100.

4. Find the difference between 5123065 and 48540121.

5. Simplify $85 - 72 \div 6 - (\overline{56 \div 7} \times 8 - 12 \times 5) + 89$.

6. Add 5948, 4837, 3726, 6273, 7384, 8495, and 6475.

7. How many pens are there in twenty-eight gross?

8. Add 17 bu. 2 pk. 6 qt., 19 bu. 3 pk. 7 qt., 14 bu. 3 qt., and 13 bu. 1 pk.

9. At 7 cents a pound, how many pounds of sugar cost $66.15?

10. At 3 cents a yard, how much will 804 ft. of wire cost?

11. A man sold 3456 quarts of berries at nine cents a quart.

12. A lady paid $6.85 for a hat and twice as much for a dress. How much did she pay for both?

13. How many square yards are there in a piece of ground 54 feet long and 48 feet wide?

LESSON 10.

1. From $814.34 subtract $286.

2. Divide 71245 by 9.

3. $2002803 \div 5$.

4. Multiply 94342 by 430.

5. 2435×1000.

6. What number is $\frac{5}{8}$ of 3800?

7. 385×264.

8. Add 4657, 5746, 3647, 2738, 4859, 6327, and 849.

9. Reduce 7 gal. 2 qt. 1 pt. 3 gi. to gills.

10. A man bought a house for $4500 and sold it for $6250.

11. At nine cents a quart, how many quarts of cherries can be bought for $14.94?

12. How many squares one inch on each side can be cut from a piece of paper 2 ft. long and 8 in. wide?

13. Add seventy thousand ninety, eight million forty-nine thousand three hundred, 497658, and nine hundred *twenty-eight* thousand seventy-six.

LESSON 11. 1. Find $\frac{7}{9}$ of \$1148.85.

2. Multiply 65489 by 204. 3. 4238 × 100.

4. Multiply 4637 by 470. 5. 362 × 478.

6. Find the difference between 1240068 and 273499.

7. Add 3425, 2534, 7869, 6978, 2637, 3748, and 9584.

8. A man sold 256 sheep at \$4.75 a head.

9. From 23 yd. 2 ft. subtract 7 yd. 2 ft. 8 in.

10. Find the difference between 53487001 and 142675000.

11. Reduce 799 dry quarts to higher denominations.

12. After a merchant had sold 16 yd. 1 ft. from a piece of ribbon, there remained 9 yd. 2 ft.

13. Find the cost of three and one-half pounds of tea at six cents an ounce.

14. How many square yards are there in a lawn twenty-five yards square?

15. There are 602 pupils in a school $\frac{4}{7}$ of whom are girls. How many boys are there?

LESSON 12. 1. Find $\frac{2}{5}$ of $42\frac{1}{2}$ pounds.

2. Multiply 45678 by 3400. 3. 630 × 100.

4. Divide 275358 by 6. 5. 304923 ÷ 7.

6. Reduce 8 rods 14 feet to inches.

7. How many rods are there in 16 miles?

8. \$843 is \$178.16 greater than what sum?

9. Add 378, 4859, 847, 7362, 68, 2839, 364, and 5746.

10. Simplify $8 \times 7 - 54 \div 6 - (\overline{12 \times 9} \div 4 - 4 \times 4)$

11. Add \$.85, \$46.24, \$8.72, \$.64, \$37.62, and \$9.84.

12. How many square yards are there in 1674 sq. ft.?

13. A grocer sold soap at 8 cents a cake, receiving $22 for it. How many cakes did he sell?

14. How many inch squares are there in a piece of paper 6 yards long and 2 feet 8 inches wide?

LESSON 13. 1. What number is $\frac{7}{9}$ of 5562?

2. Multiply 8640 by 604. 3. 764 × 600.

4. Find the difference between 4000135 and 2000648.

5. Change 391 liquid pints to higher denominations.

6. How many square inches are there in 36 square feet?

7. Add 36472, 4983, 587, 736, 2738, 6987, and 78695.

8. Find the difference between 614357 and 2003186.

9. Add 18 gal. 2 qt. 1 pt. 2 gi., 17 gal. 1 pt., 15 gal. 3 qt. 2 gi., and 16 gal. 3 qt. 1 pt.

10. A man sold a house for $5750 and lost $750. How much did he pay for it?

11. A man bought 5360 pounds of sugar at 6 cents a pound.

12. How many square yards are there in a piece of paper 36 yards long and four feet wide?

13. Add forty thousand eighty-six, ninety thousand eight hundred ninety-three, 472395, ten thousand seven hundred eighty-four, and six thousand two hundred nine.

LESSON 14. 1. Multiply 47968 by 97.

2. Multiply 87604 by 608. 3. 685 × 1000.

4. Divide 2492401 by 4. 5. 638208 ÷ 9.

6. Multiply 7486 by 649. 7. 592 × 780.

8. Reduce seventeen acres to square rods.

9. How many pecks are there in 1322 quarts?

10. How many sheep, at $6 a head, cost $2250 ?

11. What number added to 3874 will give 5697 ?

12. Find the difference between $326 and $178.64.

13. Add 84732, 6375, 4936, 749, 576, 3748, and 9867.

14. A boy earned $7.60 and spent $\frac{3}{8}$ of it for a pair of shoes. How much had he left ?

15. A man paid $37.20 for eight tons of coal. How much did it cost per ton ?

16. How many square inches are there in a piece of paper 4 yards long and seven inches wide ?

LESSON 15. **1.** Multiply 587 by 964.

2. Multiply 7080 by 608. **3.** 623 × 700.

4. Reduce 7 yd. 2 ft. 9 in. to inches.

5. Find $\frac{2}{9}$ of 23 sq. yd. 1 sq. ft. 18 sq. in.

6. Reduce 567 gills to higher denominations.

7. From 32 bu. 6 qt. subtract 14 bu. 2 pk. 7 qt.

8. $354 - 38 - 4 \times 3 - (\overline{81 \div 9} \times 4 - \overline{36 \div 8 \times 3})$.

9. Find the difference between 5120064 and 82135217.

10. Find the difference between 70012003 and 65367247.

11. Add 8679, 5243, 743, 568, 58, 938, 748, 86, and 749.

12. A has 145 sheep, and B has nine times as many. How many have both ?

13. A man bought a horse for $475 and sold it at a gain of $375. How much did he receive for it ?

14. How many square feet of boards will it take to build a tight board fence 124 ft. long and $5\frac{1}{2}$ ft. high ?

LESSON 16. **1.** What number is $\frac{5}{7}$ of 4256 ?

2. Divide 4327687 by 5. **3.** 5950480 ÷ 8.

4. Multiply 23024 by 780. **5.** 465 × 100.

6. Multiply 743 by 680. 7. 584 × 936.

8. How many yards are there in 260 feet?

9. How many sheets of paper are there in 45 quires?

10. Add $78, $6.47, $.86, $8.64, $76, $9.86, and $.94.

11. Nine bushels of potatoes cost $7.65. What was the price per bushel?

12. A grocer bought 5250 pounds of sugar and sold 2745 pounds. How many pounds had he left?

13. How many square yards are there in a ceiling that is 27 feet long and 20 feet wide?

14. Add forty million six thousand seven hundred six, seven million ninety thousand eighty, 859746, eight hundred twelve thousand one hundred ninety-one, and 973287.

LESSON 17. 1. Find $\frac{4}{5}$ of 479320.

2. Multiply 43084 by 903. 3. 487 × 200.

4. Multiply 942 by 7400. 5. 563 × 47.

6. How many feet are there in 46 rods?

7. Find the difference between 2134514 and 456738.

8. How many square yards are there in 707 square feet?

9. Find the difference between 5678902 and 43000000.

10. Add 9 yd. 2 ft. 8 in., 7 yd. 4 in., 5 yd. 2 ft., 6 yd. 1 ft. 8 in., and 4 yd. 2 ft. 4 in.

11. A man has 46 bu. 1 pk. of wheat in one bin and 56 bu. 3 pk. in another bin. How much has he in both bins?

12. A father divided a sum of money equally among his six children, giving each one $275. Find the sum divided.

13. A merchant bought 585 barrels of flour and sold $\frac{7}{9}$ of it at $5 a barrel.

14. How many 2-inch squares can be cut from a piece of tin 3 ft. long and 14 inches wide?

LESSON 18. 1. Find $\frac{5}{8}$ of 24 gal. 3 qt.

2. Divide 4735801 by 6. 3. 326081 ÷ 7.

4. Multiply 46504 by 123. 5. 977 × 600.

6. Find the difference between $165.46 and $454.

7. $3 \times (\overline{72 \times 5} \div 6) - (12 \times 6 - \overline{56 - 12 \times 4})$.

8. Add 5657, 4758, 8485, 9394, 7384, 6364, and 7273.

9. At 8 cents a quart, how many quarts of berries can be bought for $70?

10. A man gave his son $4250 and his daughter $1475 less. How much did he give to both?

11. A house cost $5775, which was seven times as much as the lot cost. Find the cost of both.

12. Reduce 2422 quarts to pecks and bushels.

13. How many inches are there in 12 rd. 4 yd. 1 ft.?

14. What is the difference in the area of two gardens, one 42 yd. square and the other containing 874 sq. yd.?

LESSON 19. 1. Find $\frac{3}{8}$ of 6008.

2. Multiply 75023 by 760. 3. 459 × 87.

4. Find the difference between 612328 and 4006005.

5. Reduce nine and one-half pounds to ounces.

6. What will 34 cows cost at $45 apiece?

7. How many bushels are there in 275 pecks?

8. Find the difference between 378009 and 414005.

9. From 34 gal. 1 pt. 2 gi. subtract 17 gal. 2 qt. 3 gi.

10. Add 37628, 9547, 473, 6273, 4738, 9678, and 7486.

11. A farmer sold 775 bushels of potatoes and had 468 bushels left. Find the value of his whole crop at $.65 a bushel.

12. How many square feet of plastering are there in the ceiling of a room 38 ft. long and 23 ft. wide?

13. Add forty-five thousand seventy, 8649, seven million ninety-four thousand eight hundred ninety-four, 534698, and twenty-five million eight thousand eighty-seven.

LESSON 20.

1. Multiply 6374 by 375.
2. Divide 215945 by 4.
3. $774657 \div 9$.
4. Multiply 89034 by 902.
5. 816×200.
6. Add $9.84, $47.08, $.65, $8.78, $65, and $45.35.
7. Add 5243, 9687, 7384, 8495, 2637, 3748, and 6374.

8. By selling a piece of land for $8650, a man gained $1275. How much did it cost him?

9. How many square yards are there in 2570 square feet?

10. A man had $80000 and lost $\frac{3}{5}$ of it in speculation. How much had he left?

11. A lady paid $5.75 for a pair of shoes and four times as much for a cloak. Find the cost of both.

12. A grocer bought flour at $6 a barrel, paying $3924 for it. How many barrels did he buy?

13. A blackboard is 18 ft. long and 3 ft. 4 in. wide. How many square feet does it contain?

LESSON 21.

1. Find $\frac{5}{6}$ of 27 yards.
2. Multiply 45897 by 490.
3. 286×3000.
4. Multiply 746 by 378.
5. 475×1000.
6. Find the difference between 814268 and 3002739.
7. Reduce 371 dry quarts to higher denominations.
8. $875 + 77 \times 8 - 99 + (28 \times 7) \div 4 - \overline{24 - 108 \div 9}$.
9. Add 2839, 3847, 4659, 7564, 6328, 8796, and 4253.
10. Find the difference between 212600 and 87416.

11. Add 24 bu. 3 pk., 25 bu. 2 pk. 5 qt., 21 bu. 1 pk., and 18 bu. 1 pk. 3 qt.

12. How many acres of land, at $9 an acre, cost $5760?

13. A man bought 230 barrels of flour at $4.85 a barrel.

14. The ceiling of a room is 19 ft. long and four yards wide. How many square feet does it contain?

LESSON 22.

1. What number is $\frac{5}{9}$ of 1998?

2. Divide 3794717 by 5.
3. 520480 ÷ 8.

4. Multiply 4586 by 703.
5. 265 × 400.

6. Multiply 6473 by 86.
7. 320 × 1000.

8. Find the difference between $413.28 and $285.

9. How many gallons are there in 1943 quarts?

10. How many sheets of paper are there in 124 quires?

11. A man bought sugar at 7 cents a pound, paying $18.55 for it. How many pounds did he buy?

12. A grocer had 75 gal. 3 qt. of oil and sold 28 gal. 2 qt. 1 pt.

13. How many square yards are there in a lawn 180 feet long and 135 feet wide?

14. Add eight hundred thousand seven hundred eight, 98462, four million seventy-five thousand sixty-eight, 276583, and ninety-three thousand seven hundred sixty-seven.

LESSON 23.

1. Multiply 47968 by 748.

2. Multiply 79048 by 980.
3. 762 × 100.

4. Multiply 478 by 569.
5. 4632 × 740.

6. $784.67 is $97 less than what sum?

7. Reduce 18 bu. 2 pk. 7 qt. to quarts.

8. How many bushels are there in 315 pecks?

9. From 41 yd. 2 ft. subtract 16 yd. 2 ft. 4 in.

10. Find the difference between 700126 and 1200014.

11. Add 2637, 6273, 3748, 7384, 4859, 9562, and 7265.

12. How much will 875 pounds of beef cost at nine cents a pound?

13. If a man's salary is $1800 and he spends $\frac{5}{8}$ of it, how much does he save?

14. How many half-inch squares are there in a sheet of paper 14 inches long and 8 inches wide?

LESSON 24. 1. Multiply 53604 by 706.

2. Divide 556428 by 6. 3. 345245 ÷ 7.

4. Multiply 4783 by 659. 5. 648 × 397.

6. Find five-sevenths of 36 bu. 3 pk. 7 qt.

7. At $8 apiece, how many books cost $1584?

8. $674 - 47 \times 7 - (\overline{75 \times 7} \div 3 - \overline{47 \times 6 - 187})$.

9. Add $58, $7.49, $.85, $47.67, $8.34, and $9.78.

10. Add 2983, 5647, 3748, 8495, 6273, 4826, and 6587.

11. A man bought eight carriages at a uniform price, paying $2200 for them. What was the cost of each?

12. A merchant bought flour for $2134 and sold it for $1928.

13. Change 627 liquid pints to higher denominations.

14. How many square inches are there in a piece of ribbon 9 yards long and 2 inches wide?

LESSON 25. 1. Find $\frac{7}{8}$ of 348608.

2. Multiply 8796 by 514. 3. 160 × 100.

4. Multiply 4796 by 578. 5. 463 × 700.

6. Find the difference between 1235006 and 458128.

7. What cost 475 acres of land at $85 an acre?

8. How many square inches are there in 46 square feet?

9. Find the difference between 768125 and 1245000.

10. How many square yards are there in 785 square feet?

11. Add 28 gal. 2 qt., 27 gal. 1 pt., 25 gal. 3 qt., 32 gal. 1 pt., and 24 gal. 2 qt.

12. A man has $765 in one bank and $456.75 more in another bank. How much has he in both?

13. How many square inches are there in a sheet of paper 2 feet 8 inches square?

14. Add sixty-four million sixty-four thousand sixty-four, 827496, eight million seven hundred three, 87876, and five thousand ninety-eight.

LESSON 26. 1. Multiply 358472 by 86.

2. Multiply 48675 by 605. 3. 432×697.

4. Divide 215396 by 4. 5. $873785 \div 9$.

6. $784 is $98.16 more than what sum?

7. How many feet are there in 78 rods?

8. How many ounces are there in 45 pounds?

9. Find the difference between $284.34 and $574.

10. Add 4738, 8264, 9375, 4628, 9898, 7576, and 6463.

11. A grocer sold eight barrels of potatoes at the same price, receiving $22 for them.

12. A man bought 168 sheep at $5 a head. He sold $\frac{4}{7}$ of them at $6 a head, and the remainder at $7 a head.

13. At 5 cents a square foot, how much will 75 pine boards cost, each board being 14 ft. long and one foot wide?

LESSON 27.

1. Find $\frac{3}{5}$ of $71\frac{1}{4}$ pounds.

2. Multiply 24605 by 430. 3. 2810 × 100.

4. Multiply 7968 by 467. 5. 945 × 837.

6. Find the difference between 1259000 and 892116.

7. From 41 bu. subtract 24 bu. 2 pk. 4 qt.

8. $(84 \div 7) \times 19 - (75 - \overline{9 \times 8 - 5 + 7 \times 4 - 24})$.

9. Add 6978, 8796, 9678, 7986, 6273, 3748, and 4859.

10. Find the difference between 984673 and 2642350.

11. A man sold 3 gross of pencils at 3 cents apiece.

12. Reduce 2742 dry quarts to higher denominations.

13. Each of 24 men dug 135 bushels of potatoes. How many did all dig?

14. A man paid $1400 for a piece of land and built a house on it costing five times as much as the lot.

15. How many square feet are there in a floor 28 feet long and 18 ft. 3 inches wide?

LESSON 28.

1. What number is $\frac{8}{9}$ of 6885?

2. Divide 3797404 by 5. 3. 418500 ÷ 9.

4. Multiply 7853 by 608. 5. 40300 × 100.

6. Multiply 4768 by 897. 7. 643 × 257.

8. Add $.68, $46.75, $654, $9.89, $47, and $9.54.

9. How many rods are there in 16 miles?

10. How many gallons are there in 1392 pints?

11. What sum must be added to $384 to make $524.68?

12. At what price per pound will seven pounds of tea cost $4.55?

13. How many square yards are there in a floor seven *yards long* and 18 ft. wide?

14. Add nine million six, 875943, eight hundred forty-three thousand eighty-four, 96354, and eight thousand seven hundred forty-three.

LESSON 29.

1. Multiply 4675 by 904.

2. Find $\frac{5}{8}$ of $22.

3. 160 × 1000.

4. Multiply 5684 by 796.

5. 7576 × 584.

6. Find the difference between 497463 and 1346000.

7. 8743 is 697 less than what number?

8. Reduce 7 gal. 2 qt. 1 pt. 3 gi. to gills.

9. Find the difference between 246352 and 87481.

10. Add 8478, 4695, 7364, 4936, 5682, 3465, and 8769.

11. How many quarts are there in 1408 gills?

12. Add 18 yd. 2 ft., 27 yd. 10 in., 24 yd. 1 ft., 25 yd. 2 in., and 19 yd. 2 ft.

13. How many papers, at seven cents apiece, cost $12.25?

14. What cost 134 yards of silk at $3.75 a yard?

15. A floor is 27 ft. long and 19 ft. 4 in. wide. How many square yards does it contain?

LESSON 30.

1. Find $\frac{5}{6}$ of $55\frac{1}{4}$ sq. ft.

2. Divide 28681 by 6.

3. 320600 ÷ 8.

4. Multiply 80790 by 780.

5. 580 × 700.

6. Multiply 6478 by 945.

7. 928 × 647.

8. Reduce 254 gills to higher denominations.

9. Find the difference between $224 and $68.23.

10. Add 4876, 9453, 4873, 4659, 4837, 3726, and 9687.

11. $(84 \div 3) \times 9 - (28 - 14 + 16 - \overline{8 \times 5} \div 2 + 7 \times 4)$.

12. A man bought a horse and carriage for $550, paying $275 for the horse. Find the cost of the carriage.

13. A man bought a watch for $75, which was four times as much as he paid for a chain. Find the cost of both.

14. How many 3-inch squares are there in a piece of paper two yards long and three feet wide?

LESSON 31. 1. Find $\frac{6}{7}$ of $6426.

2. Multiply 24653 by 504. 3. 780 × 400.

4. Multiply 857 by 968. 5. 463 × 796.

6. Find the difference between 324000 and 87024.

7. How many pecks are there in 597 quarts?

8. From 34 gal. 2 qt. 1 gi. take 26 gal. 1 pt. 3 gi.

9. How many feet are there in twenty-eight rods?

10. Find the difference between 768123 and 2004010.

11. Add 2637, 3748, 4859, 6273, 7384, 8495, and 6475.

12. At $3.35 apiece, what cost three dozen hats?

13. I sold land for $7460, which was $1540 less than I paid for it. Find the cost.

14. Find the number of square inches in a piece of paper 7 feet long and eight inches wide.

LESSON 32. 1. Multiply 76489 by 920.

2. Divide 156243 by 4. 3. 731943 ÷ 9.

4. Multiply 867 by 958. 5. 430 × 100.

6. Add $96, $8.59, $45.83, $.79, $7.95, $16, and $46.

7. Reduce thirteen acres to square rods.

8. Add 9584, 8473, 7362, 2637, 3748, 4859, and 6475.

9. How many square yards are there in 590 square feet?

10. At $8 an acre, how many acres of land can be bought for $3456?

11. A man drew $22500 from the bank and paid $\frac{5}{9}$ of it for a house and the remainder for a farm.

12. If a man has $842 in his safe and $168.43 less in the bank, how much money has he?

13. What is the difference between two surfaces, one 48 feet square and the other containing 1264 square feet?

14. Add fifty-nine million seventy, 76845, eight million seventy thousand six hundred forty-eight, 358967, and six hundred thousand nine.

LESSON 33.

1. Find $\frac{5}{6}$ of $46\frac{1}{2}$ gallons.
2. Multiply 3478 by 607.
3. 604 × 100.
4. Multiply 867 by 975.
5. 843 × 769.
6. Find the difference between 748181 and 2143516.
7. $(12 \times 7) \div 4 + 11 \times 6 - (46 + 44 - \overline{28 - 16 - 24 \div 4})$.
8. Add 43 bu. 1 pk., 36 bu. 6 qt., 42 bu. 3 pk. 2 qt., and 38 bu. 3 pk.
9. How many quarts are there in 28 pecks?
10. Find the difference between 4540000 and 4531014.
11. How many yards are there in 1448 feet?
12. At eight cents a quart, what is the value of four bushels of chestnuts?
13. A piece of land that cost $2800 was sold at a profit of $4650. How much was received for it?
14. At 8 cents a yard, how many yards of muslin cost $14?
15. Find the area of a piece of ground 129 yards long and one-third as many yards wide.

LESSON 34.

1. What number is $\frac{5}{8}$ of 6152?
2. Multiply 93847 by 569.
3. 648 × 753.
4. Divide 234340 by 5.
5. 606007 ÷ 8.
6. Find the difference between $285.43 and $432.

7. Change 918 qt. dry measure to higher denominations.

8. Add 6789, 7896, 8967, 9678, 4545, 4758, and 7364.

9. A grocer sold 14½ bushels of potatoes at 35 cents a peck. How much did he get for them?

10. From a piece of ribbon containing 28 yd. 2 ft., a merchant sold 19 yd. 1 ft. 6 in.

11. How many pounds of cheese, at eight cents a pound, cost $36.64?

12. How many square feet are there in 45 boards, if each one is 18 ft. long and 18 in. wide?

13. Add seventy-eight thousand ninety-three, 587649, seven million forty-five thousand, 958672, and six hundred thousand eight hundred ninety-six.

LESSON 35. 1. Multiply 587 by 469.

2. Multiply 72986 by 437. 3. 7060 × 80.

4. How many gallons are there in 745 quarts?

5. From 50 yd. 6 in. subtract 22 yd. 1 ft. 8 in.

6. Find the difference between 7654015 and 7648038.

7. Add 6273, 7384, 8495, 9562, 8769, 4352, and 4837.

8. Reduce 16 sq. yd. 7 sq. ft. to square inches.

9. Find the difference between 458325 and 1327000.

10. Add 8 gal. 2 qt. 1 pt., 7 gal. 1 pt., 8 gal. 3 qt., 2 qt. 1 pt., and 7 gal. 3 qt. 1 pt.

11. A farmer sold 216 barrels of apples at $2.65 a barrel. How much did he receive for them?

12. A man earns $26.25 a week, and his son earns $\frac{2}{7}$ as much. How much do both earn?

13. How many square feet are there in a blackboard nine yards long and four feet wide?

LESSON 36.

1. Find $\frac{5}{9}$ of $64\frac{1}{2}$ feet.

2. Divide 47058 by 6. **3.** $320744 \div 7$.

4. Multiply 4678 by 964. **5.** 729×648.

6. Add \$6.84, \$47.76, \$.96, \$4.85, \$46, \$9.73, and \$75.

7. $96 + 9 \times 8 - (46 - \overline{12 \times 5} \div 6 - \overline{40 - 20} + 6 \times 4)$.

8. Add 8476, 7389, 8435, 5894, 6348, 8276, and 7398.

9. How many bushels are there in 375 quarts?

10. How many pencils, at \$.04 apiece, cost \$25?

11. At 8 cents a quart, what cost 44 gal. of vinegar?

12. A man sold some wool for \$943 and gained \$258.55.

13. A farmer sold six cows at a uniform price, receiving \$504 for them.

14. How many square yards are there in a pavement 262 feet long and four feet wide?

LESSON 37.

1. Find $\frac{7}{9}$ of 5922.

2. Multiply 28703 by 569. **3.** 8473×960.

4. Find the difference between 78427 and 145286.

5. Reduce 293 liquid pints to higher denominations.

6. Add 9876, 6789, 8967, 7896, 7698, 6987, and 5342.

7. At 4 cents an ounce, what cost $5\frac{1}{2}$ pounds of tea?

8. Find the difference between 260000 and 49136.

9. Add 27 gal. 2 qt. 3 gi., 29 gal. 3 qt. 1 pt., 26 gal. 1 qt. 1 pt. 1 gi., and 18 gal. 1 pt.

10. A farmer sold 175 sheep, lost 68, and had 647 left. How many had he at first?

11. A farmer put his wheat into seven bins, putting 345 bushels into each bin. How many bushels did he have?

12. How many tiles one foot square are required to pave a hall 26 feet long and 12 feet wide?

13. Add eighty-nine thousand seven, 76458, five hundred thirty-four thousand sixty-five, 7985, and nine million eighty-six thousand nine hundred seventy-eight.

LESSON 38. 1. Multiply 849 by 576.

2. Divide 305600 by 4. 3. 211385 ÷ 9.

4. Multiply 92738 by 748. 5. 100 × 780.

6. Find the difference between $546 and $158.72.

7. How many pints are there in 419 gills?

8. Add 2345, 3452, 4523, 5234, 6789, 7896, and 8967.

9. I bought nine books at the same price, paying $14.85 for them.

10. A house that cost $4725 was sold at a loss of $1075. How much was received for it?

11. A man paid $165 for a carriage and $85 more for a horse. Find the cost of both.

12. A man bought 320 acres of land at $7 an acre. He sold $\frac{3}{8}$ of it at $9 an acre and the remainder at $8 an acre.

13. How many square feet are there in a surface 24 feet long and 18 inches wide?

LESSON 39. 1. Find $\frac{2}{5}$ of 29 bu. 1 pk. 4 qt.

2. Multiply 4367 by 849. 3. 896 × 675.

4. Find $\frac{7}{9}$ of 78885. 5. 534 × 879.

6. Find the difference between 160000 and 78042.

7. Reduce 6 rods 12 feet 7 inches to inches.

8. From 42 bu. 2 pk. subtract 18 bu. 3 pk. 6 qt.

9. $278 - (10 \times 9) \div 5 - (60 - 54 + 120 \div 10)$.

10. Find the difference between 768007 and 2134000.

11. How many square yards are there in 435 square feet?

12. Each of seven barrels contains 35 gal. 2 qt. 1 pt. of oil. How much is there in all?

13. A square piece of tin is 2 ft. 4 in. on each side. How many square inches does it contain?

14. A merchant's sales were $465 Monday, $457.48 Tuesday, $448 Wednesday, $512.72 Thursday, and $482 Friday. Find the amount of his sales for the five days.

LESSON 40.

1. What number is $\frac{4}{7}$ of 68978?
2. Divide 289651 by 5. 3. 615400 ÷ 8.
4. Multiply 56407 by 578. 5. 746 × 839.
6. $752 is $186.40 more than what sum?
7. How many gallons are there in 179 quarts?
8. Add $.67, $9.43, $48.46, $64, $7.58, $.85, and $4.65.
9. Add 9876, 8769, 7698, 6987, 7384, 6295, and 8462.

10. A merchant sold goods for $746 and gained $157.64. How much did they cost?

11. A grocer sold eight gallons of molasses at a uniform price, receiving $7.60 for it.

12. How many square yards are there in a piece of ground 48 yards long and 75 feet wide?

13. Add ninety-seven million four, 546398, eight hundred seventy thousand eighty, 294857, and forty-five thousand seven hundred sixty-eight.

LESSON 41.

1. Multiply 2978 by 487.
2. Multiply 5408 by 760. 3. 947 × 800.
4. Find the difference between 2146000 and 827125.
5. Add 6273, 3726, 7384, 3748, 8495, 4859, and 8796.
6. A farmer sold 132 sheep at $3.25 a head.
7. Find the difference between 4789164 and 8015023.

8. Add 36 yd. 7 in., 38 yd. 2 ft., 28 yd. 1 ft. 5 in., 35 yd. 2 ft., and 24 yd. 1 ft.

9. At 15 cents an inch, what cost 4 yards of gold wire?

10. Reduce 319 dry quarts to higher denominations.

11. There are 243 trees in an orchard $\frac{4}{9}$ of which are pear-trees and the remainder apple-trees.

12. A has $426, which is $56.85 less than B has. How much money have both?

13. How many square feet are there in a floor 45 feet long and 34 feet 4 inches wide?

LESSON 42. 1. Multiply 3894 by 374.

2. Divide 50592 by 6. 3. 260683 ÷ 7.

4. Multiply 43786 by 854. 5. 4675 × 89.

6. Find the difference between $274.33 and $560.

7. How many yards are there in 205 feet?

8. $(56 \div 7) \times 12 + 97 - (5 \times 4 - 8 + 18 \div 2)$.

9. Add $85, $9.45, $38.24, $78, $9.83, and $65.52.

10. Find $\frac{3}{7}$ of 29 sq. yd. 6 sq. ft. 31 sq. in.

11. Add 2637, 3748, 4859, 5948, 4837, 3726, and 8459.

12. At $6 apiece, how many hats cost $402?

13. A man divided $70.65 equally among nine boys. How much did each receive?

14. A man has $84.50. How much more must he have to buy a horse for $145?

15. How many square yards are there in the sides and bottom of a cistern 12 ft. long, 9 ft. wide, and 7 ft. deep?

LESSON 43. 1. Find $\frac{7}{8}$ of 64072.

2. Multiply 7986 by 697. 3. 378 × 94.

4. Find the difference between 783142 and 784021.

5. Add 9876, 8769, 7698, 6987, 6789, 7896, and 8967.

6. How many pecks are there in 780 quarts?

7. Reduce 18 gal. 2 qt. 1 pt. 3 gi. to gills.

8. From 52 gal. 1 pt. subtract 17 gal. 2 qt. 2 gi.

9. Find the difference between 1200600 and 624825.

10. A lady bought 18 yards of silk at $2.35 a yard.

11. How many square inches are there in a piece of paper six feet long and 44 inches wide?

12. A miller sold 575 barrels of flour to one man, 686 barrels to another, 474 barrels to another, and had 963 barrels left. How many barrels had he at first?

13. Add forty-six million seven hundred thousand, 587694, eight million seven hundred, 989898, and seventy-three million eighty-nine thousand ninety-five.

LESSON 44. 1. Multiply 4658 by 937.

2. Divide 3045361 by 4. 3. 75546 ÷ 9.

4. Multiply 50798 by 191. 5. 468 × 759.

6. Add $6.47, $45, $9.38, $.65, $8.58, $66, and $7.64.

7. Reduce 4 square yards to square inches.

8. How many bushels are there in 359 pecks?

9. Add 2345, 6789, 3452, 7896, 4523, 8967, and 7384.

10. A man sold land for $2650 and gained $575. How much did he pay for it?

11. A farmer sold sheep at $7 a head, receiving $1925 for them.

12. A lady had $19.25. She spent $\frac{5}{7}$ of it for a cloak and the remainder for a pair of shoes. Find the cost of each.

13. How many half-inch squares can be cut from a sheet of paper two feet long and 18 inches wide?

LESSON 45. 1. Find $\frac{2}{7}$ of $87\frac{1}{2}$ pounds.

2. Multiply 974 by 856. 3. 749×458.

4. Find the difference between 674000 and 673127.

5. $465 + 67 \times 8 - (9 \times 24 + 144 \div 4 - \overline{45 \div 5} \times 6)$.

6. Reduce 319 gills to higher denominations.

7. Add 8293, 6475, 7384, 6295, 8462, 7968, and 4357.

8. Find the difference between 3458000 and 765423.

9. Add 18 bu. 6 qt., 15 bu. 3 pk, 27 bu. 2 pk. 4 qt., 22 bu. 3 pk., and 25 bu. 6 qt.

10. At 8 cents an ounce, what cost $8\frac{1}{2}$ pounds of mace ?

11. How many pounds of sugar, at $.08 a pound, cost $50 ?

12. A boy raised 678 quarts of berries, which he sold at 12 cents a quart.

13. How many square feet are there in 62 boards, each one 16 ft. long and 1 ft. 3 in. wide ?

LESSON 46. 1. Multiply 40568 by 406.

2. Divide 384225 by 5. 3. $463875 \div 8$.

4. Find $\frac{8}{9}$ of 63072. 5. 84769×476.

6. Find the difference between $470 and $284.16.

7. How many rods are there in $8\frac{1}{2}$ miles ?

8. How many square yards are there in 797 square feet ?

9. Add 7896, 8967, 9678, 6789, 7384, 4859, and 3465.

10. How much must be added to 38 bu. 3 pk. 4 qt. to make 54 bu. 3 pk. ?

11. At 8 cents a quart, how many quarts of strawberries can be bought for $14 ?

12. What is the difference between two surfaces, one 38 *ft. square* and the other containing 784 square feet ?

13. Add eight hundred forty-two million seven thousand sixty, 687687, four hundred thirty-eight thousand eighty-six, 86549, six million seventy, 265341, and ninety-three million twenty-seven thousand eighty.

LESSON 47.

1. Multiply 9658 by 748.

2. Multiply 41873 by 147. **3.** 697 × 858.

4. Find the difference between 942765 and 2116000.

5. Add 2345, 3456, 4567, 5678, 6789, 7892, and 8923.

6. 3783 is 958 less than what number?

7. How many yards are there in 284 feet?

8. Reduce 12 rd. 4 yd. 2 ft. 7 in. to inches.

9. From 62 yd. 7 in. subtract 24 yd. 2 ft. 8 in.

10. Find the difference between 475116 and 473648.

11. A boy earned $18. He spent $\frac{5}{8}$ of it for a suit of clothes and the remainder for a hat and shoes.

12. A man paid $3750 for a house and three times as much for a farm. How much did he pay for both?

13. A merchant bought eight pieces of ribbon, each piece containing 16 yd. 2 ft. 6 in.

14. How many square yards are there in the walls and ceiling of a room 16 ft. long, 14 ft. wide, and 10 feet high?

LESSON 48.

1. Find $\frac{8}{9}$ of 46 square feet.

2. Divide 477505 by 6. **3.** 265706 ÷ 7.

4. Multiply 6398 by 740. **5.** 978 × 594.

6. Reduce 565 dry quarts to higher denominations.

7. Add $75, $8.49, $8, $6.98, $.74, $64.86, and $67.

8. $(720 \div 8) \times 5 - 79 + (48 \times 9) \div 4 - 47$.

9. Add 7384, 3748, 8495, 4859, 5926, 9562, and 6374.

10. A man sold five houses at a uniform price, receiving $32500 for them.

11. Find the cost of 5½ gross of pencils at 4 cents apiece.

12. A man paid $425 for a horse and $175 less for a carriage. Find the cost of both.

13. How many tiles 2 feet square are needed to pave a walk 48 yards long and 6 feet wide?

To the Teacher. — Teach long division.

LESSON 49.

1. Find ⅝ of 5328.

2. Multiply 5796 by 487.

3. 364 × 856.

4. Find the difference between 4125000 and 748243.

5. How many gallons are there in 750 quarts?

6. How many sheets of paper are there in 16 quires?

7. Add 9584, 8473, 7362, 6295, 5948, 4837, and 3726.

8. Find the difference between 738426 and 2100400.

9. A man bought 144 sheep at $4.75 a head.

10. At 6 cents a spool, how many spools of thread can be bought for $33?

11. Add 17 gal. 2 qt. 3 gi., 19 gal. 1 pt. 1 gi., 24 gal. 3 qt. 1 pt., 23 gal. 2 qt., and 16 gal. 1 pt.

12. A lady spent $6.85 for a hat, $22 for a dress, $28 for a cloak, $1.65 for gloves, and had $48.47 left.

13. What is the difference between two surfaces, one 4 feet square and the other containing 875 square inches?

To the Teacher. — Teach how to find the volume of a rectangular solid. Develop the rule by using inch cubes. Impress upon the pupils that the three dimensions must be expressed in the same *denomination* before they multiply.

LESSON 50.   1. Multiply 47563 by 98.

2. Divide 198985 by 5.   3. 665507 ÷ 9.

4. Multiply 7968 by 780.   5. 7465 × 938.

6. Find the difference between $235.48 and $420.

7. $536 \div 4 + 19 \times 27 - (\overline{84 \div 6} \times 5 - \overline{73 - 8 \times 6})$.

8. Add 9584, 8473, 7362, 2637, 3748, 4859, and 7968.

9. How many pecks are there in 380 quarts?

10. Reduce 749 gills to higher denominations.

11. A grocer made a profit of $85.75 on tea and coffee, which he sold for $643. How much did it cost?

12. A merchant sold six pair of shoes at the same price for which he received $27.

13. A grocer bought 4050 pounds of cheese at 8 cents a pound. He sold $\frac{5}{8}$ of it at 9 cents a pound, and the remainder at 9½ cents a pound.

14. How many square feet are there in a walk 45 yards long and 4 feet 4 inches wide?

FOURTH GRADE — THIRD TERM.

LESSON 1. 1. Find $\frac{5}{6}$ of 27 yards.

2. Divide 5187 by 21. 3. $4967 \div 31$.

4. Multiply 278054 by 487. 5. 68534×47.

6. Reduce 14 pounds 12 ounces to ounces.

7. $468 - (84 \div 7) \times 5 + (756 - \overline{432 - 87}) + 26 \times 9$.

8. Add 8 gal. 2 qt., 17 gal. 1 pt., 19 gal. 3 qt. 1 pt., 9 gal. 2 qt., and 7 gal. 1 pt.

9. A grocer sold 285 barrels of flour at $4.35 a barrel.

10. A has $834, which is $73.85 less than B has. How much have both?

11. How many cubic inches are there in a brick 8 in. long, 4 in. wide, and 2 in. thick?

12. At 6 cents a cake, how many cakes of soap cost $36?

13. How many cubic inches are there in a block of marble 2 ft. long, 18 in. wide, and 1 ft. thick?

LESSON 2. 1. Divide 65748 by 31.

2. Divide 6733 by 41. 3. $8670 \div 51$.

4. Multiply 78493 by 960. 5. 709×600.

6. Change 190 oz. to pounds. 7. $28754 \div 42$.

8. From 47 bu. 3 pk. subtract 19 bu. 3 pk. 6 qt.

9. Add $248, $78.58, $.76, $49.38, $86, and $439.48.

10. Add 6273, 7384, 8495, 5948, 4837, 3726, and 8697.

11. Fourteen pair of gloves cost $18.90. What was the *cost of each pair?*

12. The ceiling of a room is 19 ft. long and four yards wide. How many square feet does it contain?

13. A man has $86.85. How much more must he have to buy a carriage for $185?

14. How many cubic inches are there in a block of wood 18 in. long, 9 in. wide, and 7 in. thick?

LESSON 3. **1.** From $724 subtract $87.43.

2. Divide 10248 by 61. **3.** 45447 ÷ 71.

4. Multiply 64738 by 59. **5.** 46035 × 47.

6. What number is $\frac{5}{9}$ of 1998? **7.** 463215 ÷ 44.

8. Multiply 14 yd. 2 ft. 8 in. by 6.

9. I bought 335 acres of land at $35 an acre.

10. Add 7438, 963, 3287, 4564, 7245, 653, 98, and 375.

11. A man sold land for $5750 and lost $1250. How much would he have received for it, if he had gained $1250?

12. How many 2-inch squares are there in a piece of paper 8 yards long and 4 ft. wide?

13. How many cubic feet of water are there in a cistern 12 ft. long and 9 ft. wide, if the water is 7 ft. deep?

To the Teacher. — Require pupils always to mark the various results in the solution of concrete problems, showing what they represent.

LESSON 4. **1.** Divide 53875 by 82.

2. Multiply 48532 by 7400. **3.** 468 × 579.

4. Divide 16931 by 81. **5.** 86450 ÷ 91.

6. Reduce 215 in. to higher denominations.

7. Find the difference between 8307 and 42134.

8. Divide 47 gal. 1 pt. 2 gi. by 5.

9. A man had 624 acres of land and sold 276 acres.

10. Add 6273, 7384, 8495, 5948, 4837, 3726, and 4325.

11. How many acres of land, at $14 an acre, cost $4480?

12. How many square yards are there in a lawn 180 feet long and 135 feet wide?

13. A earns $46 a week, which is eight times as much as B earns. How much do both earn?

14. How many cubic feet of air are there in a room 24 ft. long, 18 ft. wide, and 12 ft. high?

LESSON 5.

1. Divide 54362 by 42.

2. Find $\frac{5}{8}$ of 4800. **3.** 789 × 897.

4. Divide 23680 by 32. **5.** 12983 ÷ 42.

6. Multiply 24586 by 4006. **7.** $321 – $67.43.

8. $948 + (108 \div 9) \times 5 - (85 + \overline{8 \times 9} \div 6) + 768.$

9. Add 2637, 3748, 4859, 5926, 9584, 8473, and 7362.

10. Add 9 yd. 2 ft., 7 yd. 9 in., 8 yd. 1 ft. 8 in., 9 yd. 1 ft., and 17 yd. 2 ft. 10 in.

11. If a man's salary is $1850 and he spends $\frac{3}{5}$ of it, how much does he save?

12. Reduce 26 cubic feet to cubic inches.

13. If each of nine men dig 17 bu. 3 pk. of potatoes, how many will all dig?

14. Find the number of cubic inches in a block one yard long and nine inches square at the ends.

LESSON 6.

1. Multiply 678 by 876.

2. Divide 25251 by 62. **3.** 56880 ÷ 72.

4. Multiply 3648 by 607. **5.** 4759 × 890.

6. Change 374 dry quarts to higher denominations.

7. Add 78, 4259, 385, 4372, 843, 2695, 644, and 798.

8. From 24 gal. 2 qt. 1 pt. subtract 16 gal. 3 qt. 3 gi.

9. Add $49.38, $168.50, $.64, $9.83, $64, and $85.47.

10. A man bought sugar at 5 cents a pound, paying $145 for it. How many pounds did he buy?

11. How much must be added to 43 bu. 3 pk. 4 qt. to make 63 bu. 2 pk.?

12. How many half-inch squares are there in a sheet of paper two yards long and 8 inches wide?

13. How many cubic inches of water will a pan hold that is 7 ft. long, 4 ft. wide, and 15 in. deep?

LESSON 7. 1. From $434 subtract $58.23.

2. Divide 4805 by 16. 3. 30022 ÷ 15.

4. Divide 352600 by 82. 5. 55707 ÷ 92.

6. Multiply 87168 by 6470. 7. 566 × 647.

8. Find $\frac{5}{7}$ of 36 bu. 3 pk. 7 qt.

9. Multiply 27 bu. 2 pk. 7 qt. by 7.

10. 4875 is 986 less than what number?

11. Reduce 8 sq. yd. 15 sq. ft. to square inches.

12. A man worked 38 days and received $2.75 a day.

13. How many cubic feet of water are there in a cistern 10 feet square, if the water is 8 feet deep?

14. A man bought a house for $4750 and land for three times as much, less $2250. How much did he pay for both?

LESSON 8. 1. Multiply 54872 by 807.

2. Divide 44435 by 63. 3. 657438 ÷ 73.

4. Divide 70 yd. 2 ft. 8 in. by 8.

5. Reduce 1638 sq. in. to higher denominations.

6. Find the difference between 639765 and 649244.

7. Add 6789, 7896, 8967, 8967, 6273, 7384, and 8495.

8. Nine tons of coal cost $43.65. What was the price per ton?

9. How many square inches are there in a piece of ribbon 9 yards long and 3 inches wide?

10. I paid $275 for a horse and $188 less for a carriage. What was the cost of both?

11. A man bought sheep at $6 a head, paying $750 for them. He afterward sold them at $7.25 a head.

12. Find the number of cubic feet of air in a room 38 ft. long, 26 ft. wide, and 18 ft. high.

LESSON 9.

1. Find $\frac{7}{8}$ of 348608.
2. Divide 56447 by 83.
3. 7463×896.
4. Divide 431257 by 84.
5. $372837 \div 93$.
6. Reduce 18 rods 14 feet to feet.
7. $876 + (28 \times 9) \div 7 - 46 \times 8 - (643 - 360)$.
8. Add 589, 7843, 4397, 863, 486, 89, 6875, and 748.
9. Add 24 bu. 2 pk. 7 qt., 9 bu. 6 qt., 17 bu. 3 pk. 5 qt., 1 pk. 4 qt., and 9 bu. 3 pk.
10. A lady spent $7.75 for a hat, $28 for a dress, $14.75 for a cloak, $1.75 for gloves, and had $57.85 left.
11. At 28 cents a quart, what cost 48 gallons of molasses?
12. A man sold wool for $4732 and gained $948.74. How much would he have received for it, if he had lost $326.86?
13. How many cubic inches are there in a block of stone 4 ft. long, 3 ft. wide, and 30 in. thick?

LESSON 10.

1. Divide 167453 by 74.
2. Divide 503273 by 74.
3. 879×987.
4. Multiply 724638 by 782.
5. $67956 \div 84$.
6. *From 42 yd.* 2 ft. subtract 27 yd. 1 ft. 9 in.

7. Change 1644 inches to higher denominations.

8. Add $49, $128.46, $76, $4.95, $.87, and $75.84.

9. At $16 a ton, how many tons of hay cost $720 ?

10. A man divided 12 gal. 1 qt. 1 pt. of milk equally among nine poor families. How much did each receive ?

11. A grocer made a profit of $74.86 on tea and coffee, which he sold for $432. How much did it cost ?

12. How many square inches are there in a sheet of paper 3 feet 4 inches square ?

13. How many cubic inches of water will a pan hold that is a yard long, 18 in. wide, and 7 in. deep ?

LESSON 11. 1. From $322 subtract $187.27.

2. Divide 68510 by 85. 3. 465 × 879.

4. Multiply 4863 by 375. 5. 46644 ÷ 95.

6. Multiply 18 gal. 3 qt. 1 pt. 2 gi. by 9.

7. Reduce 75 cu. yd. 16 cu. ft. to cubic feet.

8. Add 7384, 8473, 6295, 9562, 7869, 4352, and 8495.

9. A man bought 168 sheep at $5 a head. He sold $\frac{4}{7}$ of them at $6 a head and the remainder at $7 a head.

10. A has 75 acres of land, and B has nine times as many acres. How many acres have both ?

11. If Jones has 684 sheep and Brown has 278 more than Jones, how many have both ?

12. How many gallons will a tank hold that is 44 in. long, 35 in. wide, and 18 in. deep ?

LESSON 12. 1. Multiply 6879 by 435.

2. Divide 646075 by 76. 3. 52374 ÷ 86.

4. Divide 312047 by 78. 5. 7384 × 698.

6. Divide 103 bu. 3 pk. 5 qt. by 7.

7. Reduce 831 gills to higher denominations.

8. Add 42368, 7465, 387, 4286, 78429, 5624, and 746.

9. Find the difference between 4684328 and 4695479.

10. Goods that cost $1632 were sold at a loss of $267. How much was received for them?

11. At 5 cents a square foot, how much will 75 pine boards cost, each board being 14 ft. long and one foot wide?

12. A merchant cut a piece of ribbon containing 17 yd. 1 ft. into eight pieces of equal length.

13. How many cubic inches are there in a block of marble 4 feet long and six inches square at the ends?

LESSON 13.

1. Find $\frac{3}{5}$ of $71\frac{1}{4}$ pounds.

2. Divide 65660 by 67.

3. 46089 × 573.

4. Divide 253471 by 77.

5. 61456 ÷ 77.

6. Reduce 4 sq. rd. 86 sq. ft. to square feet.

7. Add 6475, 8293, 8563, 7384, 8495, 6273, and 3456.

8. $754 + 226 - 729 \div 9 - (364 - \overline{123 + 49}) + 79 \times 8.$

9. Add 17 gal. 1 pt. 3 gi., 9 gal. 3 qt. 1 pt., 1 pt. 2 gi., 3 qt. 3 gi., 18 gal. 1 pt., and 8 gal. 3 qt. 3 gi.

10. Harry has 98 marbles, which is 78 less than his brother has. How many have both?

11. How many inch cubes are there in a block one yard long, 18 inches wide, and 8 inches thick?

12. If a man sells 17 gal. 2 qt. 1 pt. of milk each day, how much will he sell in a week?

LESSON 14.

1. Divide 645372 by 77.

2. Divide 35500 by 87.

3. 768 × 900.

4. Divide 10807 by 18.

5. 4837 × 965.

6. Multiply 46357 by 758.

7. 600430 ÷ 97.

8. From 116 bu. subtract 48 bu. 2 pk. 6 qt.

9. $916 is $138.21 greater than what sum?

10. Change 3216 sq. in. to higher denominations.

11. Add $72.14, $167.06, $9.94, $.78, $8.75, and $67.

12. A man bought 32 bushels of potatoes at a uniform price, paying $20.80 for them.

13. How many square feet are there in a floor 28 feet long and 18 feet 3 inches wide?

14. Find the number of cubic feet of air in a room 28 ft. long, 18 ft. wide, and 13 ft. high.

LESSON 15.

1. What number is $\frac{8}{9}$ of 6885?

2. Divide 51019 by 17.

3. 58463 × 78.

4. Divide 379680 by 48.

5. 464463 ÷ 58.

6. Reduce 64 lb. 13 oz. to ounces.

7. Multiply 46 yd. 2 ft. 10 in. by 9.

8. Find the difference between $345 and $197.43.

9. Add 8436, 4743, 5879, 3896, 657, 78, 985, and 867.

10. A man paid $265 for a carriage and three times as much for a span of horses. Find the cost of both.

11. A man divided a sum of money equally among 19 men, giving each one $4.65.

12. If 28 barrels of flour cost $130.20, how much will 45 barrels cost?

13. How many cubic feet of water are there in a cistern 12 ft. square, if the water is 7 ft. deep?

LESSON 16.

1. Divide 79 gal. 3 qt. by 8

2. Divide 53049 by 68.

3. 53742 ÷ 78.

4. Multiply 7864 by 978.

5. 101010 ÷ 68.

6. How many pounds are there in 778 ounces?

7. How many coats, at $24 apiece, cost $1320?

8. Find the difference between 5325642 and 567859.

9. Add 8435, 4786, 7384, 4859, 7362, 8765, and 6879.

10. What amount added to $478 will make $1235.48?

11. A man sold 46 sheep at the same price, receiving $211.60 for them.

12. How many square yards of oilcloth are required to cover a floor 24 feet long and 18 feet wide?

13. How many cubic inches are there in a stick of timber one yard long and one foot square at the ends?

LESSON 17.

1. Divide 423521 by 88.

2. Divide 59840 by 88. 3. 798 × 879.

4. Multiply 75458 by 492. 5. 57623 ÷ 98.

6. Reduce 26 rd. 4 yd. 1 ft. to feet.

7. Find the cost of 324 books at $4.75 apiece.

8. Add 2637, 6273, 3748, 7384, 4859, 8495, and 7968.

9. A man had $75000 and lost $\frac{3}{5}$ of it in speculation.

10. $896 - (144 \times 7) \div 3 - (458 - 28 \times 8) + 67 \times 9$.

11. Add 27 yd. 9 in., 18 yd. 3 ft., 2 ft. 11 in., 19 yd. 2 ft. 9 in., 3 ft. 8 in., and 16 yd. 3 ft.

12. A man lost $1475 on a farm, which he sold for $8225. How much would he have received for it, if he had sold it at a profit of $775?

13. Find the number of cubic feet of air in a room 13 ft. long, 9 ft. wide, and 8 ft. high.

LESSON 18.

1. Divide 86374 by 19.

2. Divide 9448 by 19. 3. 374 × 600.

4. Multiply 4769 by 876. 5. 16820 ÷ 29.

6. From 32 gal. 2 qt. subtract 17 gal. 1 pt.

7. Reduce 742 dry quarts to higher denominations.

8. Add $19.48, $.96, $7.83, $84, $43.76, and $8.58.

9. Add 78, 463, 592, 4218, 782, 486, 94, 875, and 698.

10. From a barrel containing 43 gal. 2 qt. of molasses a grocer sold 24 gal. 3 qt. 1 pt.

11. A floor is 27 ft. long and 19 ft. 4 in. wide. How many square yards does it contain?

12. A man sold potatoes at $1.75 a barrel, receiving $77 for them.

13. How many cubic inches does a block of marble contain that is 2 ft. long, 16 in. wide, and 9 in. thick?

LESSON 19. 1. From $424 subtract $248.36.

2. Divide 26130 by 39. 3. 586 × 978.

4. Divide 140009 by 28. 5. 24329 ÷ 27.

6. Multiply 46532 by 790. 7. 493833 ÷ 49.

8. Find ⅝ of 55¼ square feet.

9. Multiply 18 bu. 2 pk. 7 qt. by 9.

10. Change 12 cu. yd. 865 cu. ft. to cubic inches.

11. At $.95 a bushel, what cost 650 bushels of wheat?

12. If 34 yards of silk cost $59.50, how many yards can be bought for $154?

13. A man lost $85.64 on some fruit, which he sold for $274.52. How much should he have received for it to gain $64.42?

14. How many gallons will a tank hold that is 33 in. long, 28 in. wide, and 15 in. deep?

LESSON 20. 1. Divide 71 yd. 9 in. by 9.

2. Divide 40542 by 59. 3. 987 × 789.

4. Multiply 46908 by 709. 5. 31533 ÷ 69.

6. Change 4785 sq. in. to higher denominations.

7. Find the difference between 487695 and 4368798.

8. Add 6273, 7384, 8495, 2637, 3748, 4859, and 3542.

9. If a man's salary is $2235 and he spends $968.45, how much does he save?

10. A man divided 14 bu. 3 pk. 4 qt. of potatoes equally among seven men. How many did each receive?

11. How many 3-inch squares are there in a piece of paper two yards long and 2 ft. 6 in. wide?

12. A man bought wool at 24 cents a pound, paying $2040 for it, and sold it at 28 cents a pound. Find the gain.

13. How many inch cubes can be put into a box 28 in. long, 17 in. wide, and 13 in. deep?

LESSON 21. 1. Find $\frac{6}{7}$ of $6426.

2. Divide 795293 by 79. 3. $48780 \div 89$.

4. Multiply 63745 by 659. 5. $2940021 \div 42$.

6. Reduce 4 sq. yd. 42 sq. ft. to square inches.

7. $758 - \overline{72 \div 6} \times 10 - (364 - 28 \times 9) + 58 \times 7$.

8. Add 4567, 2846, 7395, 8764, 649, 478, 86, and 77.

9. A merchant sold 278 yards of muslin at 8 cents a yard.

10. A man paid $785.68 for fruit and sold it for $187 more than he paid for it.

11. Add 19 bu. 7 qt., 3 pk. 6 qt., 18 bu. 2 pk. 5 qt., 1 pk. 7 qt., and 7 bu. 3 pk. 6 qt.

12. A man bought land at $26 an acre, paying $4160 for it. How much will he gain, if he sells it at $32 an acre?

13. Find the number of cubic inches in a block one yard long, 8 in. wide, and 6 in. thick.

LESSON 22.

1. Divide 11849 by 18.

2. Divide 112537 by 19.

3. 678 × 896.

4. Multiply 4289 by 456.

5. 143640 ÷ 19.

6. From 112 yd. 2 ft. subtract 47 yd. 8 in.

7. Reduce 365 gills to higher denominations.

8. Add $47.82, $.76, $8.75, $75, $9.67, $.95, and $7.64.

9. At 8 cents a pound, how many pounds of beef can be bought for $214?

10. A farmer raised 634 bushels of corn in one field and 245 bushels less in another field.

11. At $1.25 a bushel, how many bushels of wheat will cost $5500?

12. Find the number of square inches in a piece of paper 7 ft. long and eight inches wide.

13. How many cubic inches are there in a 4-inch cube? In an 8-inch cube? In a 14-inch cube?

LESSON 23.

1. Multiply 19 bu. 7 qt. by 8.

2. Divide 27364 by 38.

3. 564 × 897.

4. Multiply 280079 by 546.

5. 13608 ÷ 28.

6. From $735 subtract $287.32.

7. 1903273 ÷ 38.

8. Change 4 acres 50 sq. rd. to square rods.

9. Add 3786, 8435, 4859, 9562, 8473, 8762, and 6798.

10. A merchant sold seven pieces of silk, each piece containing 27 yd. 2 ft. 6 in.

11. A man spends $285 of his salary for board, $175 for clothes, $140 for other expenses, and has $650 left.

12. A man paid $\frac{5}{9}$ of $22500 for a house and the remainder for a farm.

13. How many 3-inch cubes are there in a block of wood 2 ft. long, 9 in. wide, and 6 in. thick?

LESSON 24.

1. Multiply 476 by 879.

2. Divide 24310 by 39.

3. 18525 ÷ 39.

4. Divide 63 gal. by 8.

5. 16500 ÷ 29.

6. Change 851 inches to higher denominations.

7. Add 46, 728, 437, 783, 3698, 7465, 578, and 594.

8. Find the difference between 743146 and 953478.

9. A man sold his farm for $9250, which was $1675 more than he paid for it. What would he have received for it, if he had lost $875?

10. What is the difference between two surfaces, one 48 ft. square, and the other containing 1264 square feet?

11. Eighteen yards of silk cost $29.52. What was the price per yard?

12. How many 2-inch cubes are there in a piece of marble 18 in. long, 16 in. wide, and 8 in. thick?

LESSON 25.

1. Find $\frac{5}{6}$ of $46\frac{1}{2}$ gallons.

2. Divide 22040 by 38.

3. 19000 ÷ 39.

4. Divide 27316 by 39.

5. 7865 × 879.

6. Multiply 4069 by 435.

7. 531073 ÷ 59.

8. Reduce 12 rd. 3 yd. 2 ft. to feet.

9. 7597 is 658 less than what number?

10. $932 - (268 - 8 \times 8) + (240 \div 6) \times 7 - 27 \times 8$.

11. Add 15 gal. 2 qt. 1 pt., 16 gal. 1 pt. 3 gi., 8 gal. 3 qt. 2 gi., 9 gal. 1 pt. 3 gi., and 1 gal. 1 qt. 1 pt.

12. If 9 pounds of tea cost $5.85, how many pounds can be bought for $30.55?

13. A merchant divided a sum of money among his 35 clerks, giving each one $125.

14. Find the number of cubic inches in a block 2 ft. long, one foot wide, and 9 in. thick.

LESSON 26.

1. Divide 1923263 by 48.

2. Divide 105243 by 49. **3.** 476 × 798.

4. Multiply 9436 by 708. **5.** 27880 ÷ 49.

6. From 82 bu. 3 pk. subtract 47 bu. 1 pk. 5 qt.

7. How many pounds are there in 4110 ounces ?

8. Add $78.59, $66, $17.49, $97, $8.69, and $66.74.

9. Add 2345, 3456, 4567, 5678, 7892, 8923, and 9687.

10. A man bought land for $12225 and sold it for $10750. How much did he gain or lose ?

11. What is the area of a piece of ground 129 yards long and one-third as many yards wide?

12. A farmer sold 32 bushels of wheat, receiving $27.20 for it.

13. How many cubic feet of masonry are there in a wall 65 ft. long, 9 ft. high, and one yard thick ?

LESSON 27.

1. Multiply 4657 by 768.

2. Divide 27364 by 59. **3.** 27602 ÷ 59.

4. From $642 subtract $97.43. **5.** 21227 ÷ 58.

6. What number is $\frac{5}{8}$ of 6152? **7.** 4738 × 679.

8. Multiply 18 yd. 2 ft. 9 in. by 8.

9. A man sold 265 sheep at $3.75 a head.

10. Change 84 cu. yd. 16 cu. ft. to cubic feet.

11. Add 2457, 1875, 5834, 768, 9348, 1763, and 875.

12. How many cubic feet of air are there in a room 14 ft. square and 9 ft. high ?

13. If a farmer receives $986 for his wheat and $275 more for his potatoes, how much does he receive for both ?

14. How many square yards of paper will it take to cover the four walls of a room 16 ft. long, 13 ft. wide, and 9 ft. high ?

LESSON 28.

1. Divide 46716 by 68.
2. Divide 101735 by 69.
3. 736 × 498.
4. Multiply 87354 by 438.
5. 26702 ÷ 69.
6. Divide 74 gal. 1 qt. 1 pt. 2 gi. by 6.
7. 5000 is 362 greater than what number?
8. Reduce 57266 cu. in. to higher denominations.
9. Find the difference between 784538 and 7216824.
10. Add 6273, 7384, 8495, 2637, 3748, 4859, and 6978.
11. A grocer bought butter at 23 cents a pound, paying $110.40 for it.
12. How many square feet are there in 45 boards, if each one is 18 ft. long and 18 in. wide?
13. How many cubic inches are there in a stick of timber one foot square at the ends and 6 feet long?

LESSON 29.

1. Divide 1566084 by 78.
2. Divide 74536 by 79.
3. 789 × 546.
4. Multiply 78045 by 164.
5. 36182 ÷ 79.
6. Reduce 8 sq. rd. 16 sq. yd. to square feet.
7. Add 4786, 7359, 4857, 3672, 6498, 8379, and 5968.
8. $842 - (9 \times 12 - 7 \times 8 + 105 \div 5) + (42 \div 6) \times 14$.
9. Add 15 yd. 2 ft., 16 yd. 8 in., 17 yd. 2 ft. 9 in., 8 yd. 11 in., 3 ft. 7 in., and 8 yd. 2 ft. 6 in.
10. What is the value of 26 barrels of potatoes at $2.65 a barrel?
11. A farmer sold his wheat for $587 and his potatoes for twice as much. How much did he receive for both?
12. A man earns $26.25 a week, and his son earns $\frac{2}{7}$ as much. How much do both earn?
13. How many 2-inch cubes are there in a block of granite 4 ft. long, 3 ft. wide, and 2 ft. thick?

LESSON 30.

1. Divide 58625 by 88.

2. Divide 475326 by 89.

3. 69153 ÷ 89.

4. Change 5584 sq. in. to higher denominations.

5. Add 93, 478, 5246, 2487, 532, 768, 698, and 967.

6. How many cubic inches are there in a 9-inch cube?

7. Add $59.73, $7.38, $.76, $9.45, $86, $7.46, and $59.

8. From 42 sq. yd. 7 sq. ft. 78 sq. in. subtract 28 sq. yd. 8 sq. ft. 96 sq. in.

9. A man has 85 sheep. How many more must he get to have 322?

10. How many bushels of potatoes, at 75 cents a bushel, cost $630?

11. How many square feet are there in a blackboard 9 yd. long and 4 ft. wide?

12. If a merchant sells 111 yards of silk in equal parts to six ladies, how much does each buy?

LESSON 31.

1. From $536 subtract $278.56.

2. Find $\frac{5}{9}$ of $64\frac{1}{2}$ feet.

3. 35442 ÷ 99.

4. Divide 253476 by 99.

5. 63223 ÷ 79.

6. Multiply 54286 by 567.

7. 741048 ÷ 39.

8. Change 4 rods 12 feet to inches.

9. Multiply 19 bu. 3 pk. 7 qt. by 7.

10. A grocer bought of each of six men 24 bu. 3 pk. 4 qt. of potatoes. How many did he buy?

11. A man sold his house for $7500, which was $2500 less than he paid for it. How much would he have received for it, if he had gained $1875?

12. A lady bought 24 yards of silk for $42. How much would 65 yards cost at the same price?

13. Find the number of cubic feet of water in a cistern 24 ft. long and 18 ft. wide, if the water is 12 ft. deep.

LESSON 32.

1. Divide 287546 by 99.
2. Divide 85860 by 180.
3. 456 × 678.
4. Multiply 98074 by 78.
5. 130727 ÷ 190.
6. Divide 37 sq. yd. 3 sq. ft. 56 sq. in. by 5.
7. Reduce 1739 inches to higher denominations.
8. Add 6378, 4983, 5984, 4697, 6458, 4563, and 9876.
9. Find the difference between 8434602 and 8534721.
10. A man bought 45 sheep at a uniform price, paying $168.75 for them.
11. How many square yards are there in a pavement 262 feet long and four feet wide?
12. A man bought two farms for $14625, paying $8758 for the better one.
13. How many cubic inches are there in a cube of marble 45 inches on each edge?
14. A man bought 360 sheep at $4 a head. He sold $\frac{3}{5}$ of them at $4.75 a head and the remainder at $5.25 a head.

LESSON 33.

1. Find $\frac{7}{9}$ of 5922.
2. Divide 191080 by 281.
3. 5964 × 878.
4. Multiply 37694 by 874.
5. 229804 ÷ 292.
6. Reduce 5 cu. yd. 12 cu. ft. to cubic inches.
7. $843 - (\overline{88 \times 4} \div 2 + 8 \times 9) + 587 + (246 \div 6)$.
8. Add 785, 4657, 438, 3426, 345, 7938, 685, and 76.
9. How many cubic inches are there in a 14-inch cube?
10. What cost nine bushels of berries at 14 cents a quart?
11. Add 8 bu. 2 pk. 1 pt., 6 bu. 7 qt. 1 pt., 8 bu. 3 pk. 7 qt., 2 pk. 5 qt., and 7 bu. 1 pk.
12. A merchant sold some goods for $896, which was $164.43 less than they cost. How much would he have gained, if he had sold them for $1238?

13. A boy bought three bushels of peanuts at $1.85 a bushel and sold them at 5 cents a pint.

LESSON 34. 1. Divide 6800543 by 291.

2. Divide 299270 by 383. 3. 486 × 800.

4. Multiply 6947 by 285. 5. 278952 ÷ 394.

6. How many pounds are there in 1295 ounces?

7. From 114 gal. 2 qt. subtract 46 gal. 2 qt. 1 pt.

8. Add $45.27, $8.64, $.88, $78.89, $65, and $9.34.

9. At $2.25 a yard, how many yards of silk cost $54?

10. Frank earned $17 in a month, which was $8.75 more than Harry earned. How much did both earn?

11. How many tiles one foot square will be required to pave a hall 25 ft. long and 12 ft. wide?

12. A boy sold chestnuts at 12 cents a quart, receiving $6.48 for them. If they cost him eight cents a quart, how much did he gain?

13. Find the number of cubic inches in a stone 4 ft. long, 3 ft. wide, and 4 in. thick.

LESSON 35. 1. From $643 subtract $254.35.

2. Divide 210374 by 398. 3. 278964 ÷ 492.

4. Divide 3216479 by 480. 5. 847094 × 684.

6. Change 8 sq. rd. 42 sq. ft. to square feet.

7. What cost 68 yards of silk at $1.35 a yard?

8. Multiply 28 sq. yd. 5 sq. ft. 118 sq. in. by 6.

9. Add 6273, 7384, 8495, 5948, 4837, 3726, and 8769.

10. A dealer bought coal for $4368 and sold it at a profit of $1165.74.

11. How many cubic inches are there in a block 2 yards long and 8 inches square at the ends?

12. How many square inches are there in the entire surface of a plank 6 ft. long, 8 in. wide, and 2 in. thick?

13. A man bought 320 acres of land at $17 an acre. He sold $\frac{3}{8}$ of it at $9 an acre and the remainder at $24 an acre. How much did he gain or lose?

LESSON 36. 1. Divide 150 bu. 1 pk. 7 qt. by 9.

2. Divide 264479 by 580. 3. 976 × 869.

4. Multiply 7468 by 689. 5. 222592 ÷ 592.

6. Add 87, 432, 3764, 8569, 648, 298, 87, and 77.

7. Change 57644 sq. in. to higher denominations.

8. Find the difference between 23100352 and 4234875.

9. A farmer sold 64 sheep at a uniform price, receiving $288 for them.

10. How many square feet are there in a surface 24 feet long and 12 inches wide?

11. A boy has a cord 15 yd. 1 ft. 4 in. long. How much must he add to it to make it 32 yards long?

12. How many cubic feet of air are there in a room 45 ft. long, 34 ft. wide, and 18 ft. high?

13. A speculator bought potatoes at $.65 a bushel, paying $44.20 for them. What would have been the cost of them, if he had paid $.85 a bushel?

LESSON 37. 1. Find $\frac{2}{5}$ of 29 bu. 1 pk. 4 qt.

2. Divide 35243 by 188. 3. 56322 ÷ 199.

4. Divide 142157 by 49. 5. 476073 ÷ 68.

6. Multiply 49086 by 576. 7. 65047 ÷ 188.

8. Reduce 18 rods 4 yards to feet.

9. $896 is $278.38 more than what sum?

10. Add 6487, 7459, 4875, 6498, 8495, 9573, and 8436.

11. $742 + 14 \times 8 - \overline{76 \div 4} \times 3 - (216 + \overline{7 \times 6} \div 3)$.

12. Add 14 sq. yd. 8 sq. ft. 126 sq. in., 26 sq. yd. 86 sq. in., and 19 sq. yd. 7 sq. ft. 75 sq. in.

13. A man sold 2658 pounds of butter at 24 cents a pound. How much did he receive for it?

14. How many 2-inch cubes are there in a block of marble 2 ft. long, 18 in. wide, and 12 in. thick?

LESSON 38. 1. Divide 978453 by 189.

2. Divide 134784 by 288. 3. 576×780.

4. Multiply 90854 by 754. 5. $1405598 \div 299$.

6. From 72 yd. 10 in. subtract 27 yd. 1 ft. 11 in.

7. Reduce 242475 cu. in. to higher denominations.

8. Add $58.43, $7.65, $.78, $8.74, $58, $6.45, and $86.

9. A man sold 48 bushels of potatoes for $36.48. What was the price per bushel?

10. A square piece of tin is 2 ft. 4 in. on each side. How many square inches does it contain?

11. A miller sold flour for $2423 and gained $436.72. How much would he have received for it, if he had lost $84?

12. Find the number of cubic feet of water in a cistern 12 ft. long and 9 ft. wide, if the water is 7 ft. deep.

13. A lady bought tea, coffee, and sugar for $7.20. $\frac{3}{8}$ of the sum spent was paid for the tea and coffee, and the remainder was paid for sugar at 6 cents a pound.

LESSON 39. 1. From $216 subtract $128.28.

2. Divide 219428 by 387. 3. 7364×978.

4. Multiply 7498 by 647. 5. $190244 \div 398$.

6. What number is $\frac{4}{7}$ of 68978?

7. Multiply 47 gal. 3 qt. 1 pt. by 9.

8. Find the cost of 38 cows at $45 apiece.

9. Change 8 acres 75 sq. rd. to square rods.

10. Add 4325, 5876, 479, 346, 84, 79, 268, 459, and 7896.

11. Frank earns $48 a month, and his father earns $84 more. How much do both earn?

12. How many cubic inches are there in a piece of slate 4 feet square and one inch thick?

13. A has 148 sheep. B has three times as many as A less 84, and C has as many as A and B together less 68. How many have all?

LESSON 40. 1. Divide 151 yd. 1 ft. by 8.

2. Divide 271026 by 478. 3. 338141 ÷ 498.

4. Multiply 76584 by 287. 5. 673285 ÷ 388.

6. Add 6273, 3748, 8495, 5926, 4837, 8796, and 4867.

7. Change 14748 dry quarts to higher denominations.

8. Find the difference between 6594573 and 62374896.

9. Goods that cost $932 were sold at a loss of $146.28.

10. How many square yards are there in a piece of ground 48 yards long and 75 feet wide?

11. At 8 cents a pound, how many pounds of sugar cost $600?

12. How many 3-inch cubes are there in a block 27 in. long, 12 in. wide, and 9 in. thick?

13. A man bought 150 acres of land for $7650 and sold it at $65 an acre.

14. A speculator bought potatoes at $.65 a bushel, paying $2600 for them, and sold them at $.74 a bushel.

FIFTH GRADE—FIRST TERM.

LESSON 1. 1. Multiply 74658 by 597.

2. Divide 5208 by 21. 3. $4998 \div 31$.

4. Multiply 48675 by 605. 5. 8653×467.

6. $840 - (81 \div 9) \times 7 - (120 \div 6 + 30 - 26) \times 7$.

7. Add 784635, 63879, 436578, 85474, 9368, and 57869.

8. Add 8 gal. 2 qt., 17 gal. 1 pt., 19 gal. 3 qt. 1 pt., 9 gal. 2 qt., and 7 gal. 2 qt. 1 pt.

9. How many cubic inches are there in a block of marble 2 ft. long, 4 in. wide, and 3 in. thick?

10. The sum of two numbers is 7423, and one of them is 2567. Find the other number.

11. A man paid $145 for a carriage and $130 more for a horse. Find the cost of both.

12. A man sold land for $45 an acre, receiving $7200 for it. How much would he have received for it, if he had sold it at $52 an acre?

13. A merchant sold flour for $2845 and lost $275.85. How much would he have received for it, if he had gained $316?

TO THE TEACHER.—In the solution of concrete problems always require pupils to mark the various results, showing what they represent. Especially is this desirable in the solution of those problems in which no question is asked.

LESSON 2.

1. Multiply 74695 by 978.
2. Divide 6774 by 41.
3. 8721 ÷ 51.
4. Find the cost of 258 sheep at $5.75 a head.
5. From 47 bu. 3 pk. subtract 19 bu. 3 pk. 6 qt.
6. Add $248, $78.58, $.76, $49.38, $74, and $439.76.
7. Add 48753, 6972, 794, 72168, 4937, 874, and 43958.
8. How many square inches are there in 68 square feet?
9. How many acres of land, at $14 an acre, cost $4480?
10. A man raised 256 bushels of potatoes and sold $\frac{3}{8}$ of them at 85 cents a bushel.
11. The difference between two numbers is 4764, and the smaller number is 2685. Find the larger number.
12. How many square inches are there in a piece of paper 3 ft. 3 in. long and 9 in. wide?
13. A man bought wheat for $39600 and sold it for $42750, thereby gaining 7 cents a bushel. Find the number of bushels bought and the cost per bushel.

To the Teacher. — Teach 1 . . . 6. Carefully develop all definitions, and in no case require pupils to memorize definitions until they have the ideas that the definitions express.

LESSON 3.

1. Learn 1 . . . 6.
2. Divide 10248 by 61.
3. 693 × 85.
4. Multiply 7684 by 460.
5. 45447 ÷ 71.
6. Multiply 14 yd. 2 ft. 9 in. by 9.
7. Find the difference between 8307 and 42133.
8. Reduce 173 dry quarts to higher denominations.
9. $758 + (14 \times 9) \div 7 - \overline{8 \times 5 \times 6 - 180} \div 3 \div 9.$
10. The product of two numbers is 13650, and one of them is 42. Find the other number.
11. How many cubic inches are there in a block 3 ft. long, 9 in. wide, and 7 in. thick?

12. A man paid $465 for a span of horses and $185 less for a carriage. Find the cost of both.

13. A man bought 12465 pounds of wool at 28 cents a pound and sold it so as to gain $623.25.

14. At the rate of $5.95 for 7 bushels of potatoes, how many bushels can be bought for $37.40?

LESSON 4. 1. Learn 1 . . . 6.

2. Divide 16931 by 89. 3. 86450 ÷ 91.

4. Multiply 4768 by 897. 5. $724.38 — $86.

6. Find $\frac{3}{7}$ of 20 bu. 3 pk. 1 qt.

7. Divide 67 gal. 3 qt. 1 pt. 2 gi. by 5.

8. How many feet are there in 48 rods?

9. What number besides 29 will exactly divide 1943?

10. At $34.75 an acre, how many acres of land can be bought for $5143?

11. Bought 465 sheep at $4.85 a head and sold them for $2875. How much did I gain or lose?

12. How many square feet are there in a ceiling 18 ft. long and 14 ft. 4 in. wide?

13. If the divisor is 126 and the quotient 78, what is the dividend?

To the Teacher. — Show what is meant by the average price or average number, and how it is found.

LESSON 5. 1. Multiply 7854 by 618.

2. Divide 23680 by 32. 3. 12983 ÷ 42.

4. Add 58769, 8543, 897, 65, 4876, 4693, 568, and 5879.

5. $786 + 7 \times 8 - 96 \div 8 - (4 \times 15 - 121 \div 11) \times 15$.

6. The sum of two numbers is 12346, and one of them is 7469. Find the other number.

7. Add 9 yd. 2 ft., 7 yd. 9 in., 8 yd. 1 ft. 8 in., 9 yd. 1 ft., and 17 yd. 2 ft. 10 in.

8. Find the number of cubic feet of water in a cistern 12 ft. long and 8 ft. wide, if the water is $6\frac{1}{2}$ ft. deep.

9. A lady bought one pound of tea for 55 cents and one pound for 75 cents. What was the average price per pound?

10. A man paid $1575 for a lot and built a house on it costing 4 times as much. Find the cost of both.

11. A man bought three cows at $45 a head and two at $65 a head. Find the average price paid.

To the Teacher. — Teach 7 . . . 12.

LESSON 6.

1. Learn 1 . . . 12.
2. Divide 25251 by 62.
3. 56880 ÷ 72.
4. Multiply 39684 by 796.
5. 412536 ÷ 67.
6. From 23 gal. 2 qt. 1 pt. subtract 17 gal. 3 qt. 3 gi.
7. Add $49.38, $168.50, $.64, $9.83, $78, and $265.94.

8. A man sold three gross of pencils at 3 cents apiece. How much did he receive for them?

9. How many square yards are there in a floor 18 ft. long and $15\frac{1}{2}$ ft. wide?

10. The difference between two numbers is 124870, and the larger number is 432673. Find the smaller number.

11. There are 414 trees in an orchard $\frac{7}{9}$ of which are apple-trees and the remainder pear-trees.

12. A man divided a sum of money equally among 18 men, giving each one $48.75. How much did he give to all?

13. If 420 barrels of flour cost $1785, how much will 248 barrels cost at the same price?

LESSON 7.

1. Learn 1 . . . 12.
2. Divide 4805 by 16.
3. 589 × 476.
4. Divide 352600 by 82.
5. 30022 ÷ 15.
6. Multiply 4678 by 904.
7. 55707 ÷ 92.

8. Multiply 27 bu. 2 pk. 7 qt. by 7.

9. Find the difference between 639767 and 649244.

10. Reduce 279 liquid pints to higher denominations.

11. $589 + (140 \div 7) \times 9 - (7 \times 36 - \overline{248 - 127} \times 2)$.

12. The product of two numbers is 11826, and one of them is 54. What is the other number?

13. How many cubic feet of air are there in a room 8 yd. long, 18 ft. wide, and 12½ ft. high?

14. A man sold apples for $312 and gained $47.45. How much would he have received for them, if he had sold them at a loss of $18.95?

15. If there are 280 pupils in school Monday, 295 Tuesday, 312 Wednesday, 303 Thursday, and 275 Friday, what is the average attendance for the week?

LESSON 8. **1.** What number is $\frac{3}{7}$ of 2849?

2. Divide 44435 by 63. **3.** $657438 \div 73$.

4. Multiply 6978 by 796. **5.** $434 – $58.23.

6. Divide 70 yd. 2 ft. 8 in. by 8.

7. How many rods are there in 18 miles?

8. Add 4873, 7384, 9584, 4859, 7869, 9867, and 7896.

9. If the divisor is 225, the quotient 160, and the remainder 75, what is the dividend?

10. A farmer sold 468 bushels of potatoes, receiving $351 for them.

11. A room is 18 ft. square. How many square feet are there in the ceiling?

12. Seven men bought land for $18412 and sold it for $27288. How much did each gain?

13. What is the average price of five horses, if three of them cost $125 apiece and the others $175 apiece?

LESSON 9.

1. Multiply 58079 by 780.

2. Divide 56447 by 83.

3. 7654×89.

4. Divide 412035 by 87.

5. $372837 \div 93$.

6. Reduce 1872 square feet to square yards.

7. $1679 - (13 \times 12) \div 6 - (\overline{30 - 8} \times 6 - 48 - 6 \times 4)$.

8. Add 46937, 9648, 793, 45846, 8759, 687, 7396, and 568.

9. Add 28 bu. 2 pk. 7 qt., 9 bu. 6 qt., 17 bu. 3 pk. 5 qt., 1 pk. 4 qt., and 9 bu. 3 pk.

10. A merchant sold some goods for $436.84 and lost $78. How much did they cost?

11. The sum of two numbers is 49321, and one of them is 29483. Find the other number.

12. Find the number of cubic inches in a block one yard long and 9 in. square at the ends.

13. A dealer sold 464 tons of coal at $4.75 a ton, 248 tons at $5.15 a ton, and 138 tons at $5.35 a ton. How much did he receive for all?

To the Teacher. — Teach 13 . . . 22.

LESSON 10.

1. Learn 13 . . . 22.

2. Divide 503273 by 74.

3. $67956 \div 84$.

4. Reduce 7 gal. 2 qt. 1 pt. 3 gi. to gills.

5. From 42 yd. 2 ft. subtract 27 yd. 1 ft. 9 in.

6. At $16 a ton, how many tons of hay cost $720?

7. Add $48, $128.46, $5.95, $.98, $8.54, and $86.

8. What cost 485 barrels of flour at $4.65 a barrel?

9. Multiply the sum of 275 and 342 by four times their difference.

10. What is the area of a piece of ground 45 yds. long and 43 ft. wide?

11. A man who had $625 paid $\frac{3}{5}$ of it for a span of *horses and the* remainder for a carriage.

12. The difference between two numbers is 82164, and the smaller number is 48739. Find the larger number.

13. A man bought wool for $1170 and sold it for $1395, thereby gaining 5 cents a pound. Find the cost per pound.

LESSON 11. 1. Learn 13 . . . 22.

2. Divide 68510 by 85. 3. 792 × 739.

4. Multiply 24653 by 586. 5. 46644 ÷ 95.

6. Multiply 18 gal. 3 qt. 1 pt. 2 gi. by 9.

7. Goods that cost $768.45 were sold for $943.

8. Reduce 871 dry quarts to higher denominations.

9. Add 6273, 7384, 8495, 5948, 4837, 3726, and 8796.

10. Find the difference between 4684328 and 4695479.

11. $842 + 12 \times 9 \times 4 - (7 \times 8 - \overline{40 - 18} + 11 \times 6)$.

12. The product of two numbers is 17664, and one of them is 46. What is the other number?

13. How many cubic inches of water will a pan hold that is 7 ft. long, 4 ft. wide, and 15 in. deep?

14. If I buy 13 sheep at $4.50 a head and 12 at $6.25 a head, what is the average price paid?

15. If 18 yards of silk cost $33.30, how many yards can be bought for $48.10?

To the Teacher. — Teach 23 . . . 26. Carefully develop all rules from the solution of problems. Never require pupils to memorize rules in advance of all knowledge of the process. Rules should always follow more or less practice.

LESSON 12. 1. Learn 23 . . . 26.

2. Divide 646075 by 76. 3. 897 × 658.

4. From $216 subtract $78.13. 5. 52374 ÷ 86.

6. Divide 103 bu. 3 pk. 5 qt. by 7.

7. How many cubic feet are there in 28 cubic yards?

8. What number besides 59 will exactly divide 4897?

9. In a school there are 602 pupils, $\frac{4}{7}$ of whom are girls. How many boys are there?

10. How many square feet are there in a floor six yards long and 15 feet wide?

11. John has $105, which is 12 times as much as Harry has. How much money have both?

12. If the divisor is 316, the quotient 146, and the remainder 276, what is the dividend?

13. Bought land at $12 an acre, paying $5160 for it, and sold it at $16 an acre.

To the Teacher. — Have pupils write numbers from dictation and read numbers written on the board.

LESSON 13.

1. Learn 23 . . . 26.

2. Divide 65660 by 67.

3. 754×829.

4. Multiply 76489 by 960.

5. $61456 \div 77$.

6. Add 54578, 68435, 4658, 945, 678, and 75986.

7. How many cubic yards are there in 4385 cubic feet?

8. $4123 - 43 \times 12 - (126 - \overline{78 + 18} + 16 \times 5) \times 4$.

9. Add 17 gal. 1 pt. 3 gi., 9 gal. 3 qt. 1 pt., 1 pt. 2 gi., 3 qt. 3 gi., 18 gal. 1 pt., and 8 gal. 3 qt. 3 gi.

10. The sum of two numbers is 723014, and one of them is 41236. Find the other number.

11. How many cubic feet of water will a cistern hold that is 10 feet square and 8 feet deep?

12. A farm that cost $4785 was sold at a gain of $1665. How much was received for it?

13. Two men are 215 miles apart. If they travel toward each other, one 47 miles a day and the other 38 miles a day, how far apart will they be at the end of the first day?

To the Teacher. — Teach 27 . . . 32.

LESSON 14.

1. Learn 23 . . . 32.

2. Divide 35500 by 87. **3.** 8736 × 689.

4. Multiply 7498 by 768. **5.** 600430 ÷ 97.

6. From 116 bu. subtract 48 bu. 2 pk. 6 qt.

7. How many feet are there in twenty-six rods?

8. Add $72.14, $167.06, $9.95, $.86, and $77.93.

9. A boy earned $7.60 and spent $\frac{3}{8}$ of it for a pair of shoes. How much had he left?

10. Each of seventeen books has 438 pages. How many pages have all?

11. The difference between two numbers is 482738, and the larger number is 1249463. Find the smaller number.

12. How many square inches are there in one side of a board 14 feet long and nine inches wide?

13. A man bought 468 acres of land at $65 an acre. He sold part of it at the same price, receiving $17810 for it. How many acres had he left?

LESSON 15.

1. Learn 23 . . . 32.

2. Divide 10807 by 18. **3.** 759 × 658.

4. Divide 379680 by 48. **5.** 51019 ÷ 17.

6. Multiply 340768 by 617. **7.** 464463 ÷ 58.

8. Multiply 46 yd. 2 ft. 10 in. by 9.

9. $715 is $89.43 greater than what sum?

10. Find the difference between 5325642 and 567859.

11. Reduce 333 liquid pints to higher denominations.

12. $934 - 7 \times 10 - (\overline{80 - 30} \times 6 - 25 \times 6) \times 5.$

13. Find the number of cubic feet of air in a room 38 ft. long, 26 ft. wide, and 14 ft. high.

14. The product of two numbers is 5472, and one of them is 12. What is the other number?

15. A farmer has seven bins, each containing 165 bushels of wheat. He has sold 785 bushels. Find the value of his whole crop at 96 cents a bushel.

LESSON 16. **1.** From $345 subtract $197.43.

2. Divide 53049 by 68. **3.** $53742 \div 78$.

4. Divide 79 gal. 3 qt. by 8. **5.** 7583×697.

6. Reduce 16 acres to square rods.

7. Find $\frac{7}{8}$ of 23 sq. yd. 1 sq. ft. 18 sq. in.

8. Add 78369, 49865, 7384, 8495, 6273, 5976, and 7698.

9. At $3.75 a head, how many sheep cost $540?

10. If the divisor is 184, the quotient 175, and the remainder 86, what is the dividend?

11. How many square yards are there in a lawn 36 yd. long and 26 yd. 1 ft. wide?

12. A man bought 675 barrels of apples at $2.35 a barrel. 48 barrels were spoiled, and he sold the remainder at $2.85 a barrel. How much did he gain or lose?

13. A man sold a house for $6450 and lost $1050. How much would he have gained or lost, if he had sold it for $6250?

TO THE TEACHER. — Teach 33 . . . 40.

LESSON 17. **1.** Learn 33 . . . 40.

2. Divide 59840 by 88. **3.** $57623 \div 98$.

4. Multiply 293847 by 560. **5.** 8794×568.

6. Add 875, 436, 5438, 7843, 68496, 73482, and 85697.

7. $685 + 22 \times 8 \times 3 - (160 \div \overline{75 - 65} + \overline{12 + 8} \times 4)$.

8. At 3 cents a yard, how much will 2538 ft. of wire cost?

9. Add 27 yd. 9 in., 18 yd. 3 ft., 2 ft. 11 in., 19 yd. 2 ft. *9 in.,* 3 ft. 8 in., and 16 yd. 3 ft.

10. How many cubic inches are there in a block of stone 4 ft. long, 3 ft. wide, and 30 in. thick?

11. The sum of two numbers is 400235, and one of them is 120437. Find the other number.

12. One-half of one number is 438, and 4 times another number is 668. Find the sum of the two numbers.

13. A speculator bought 18000 bushels of potatoes at $.65 a bushel. He sold one-half of them at $.72 a bushel, one-third of them at $.76 a bushel, and the remainder at $.70 a bushel.

To the Teacher. — Have pupils write numbers from dictation and read numbers written on the board.

LESSON 18. 1. Learn 33 . . . 40.

2. Divide 9448 by 19. 3. 16820 ÷ 29.

4. From 32 gal. 2 qt. subtract 17 gal. 1 pt.

5. How many inches are there in twenty-seven yards?

6. Add $19.58, $.96, $7.83, $.77, $47.86, $8.58, and $26.

7. A merchant bought 585 barrels of flour and sold $\frac{7}{8}$ of it at $4.75 a barrel.

8. A farmer sold 685 bushels of wheat at $.95 a bushel. How much did he receive for it?

9. How many square yards are there in a grass-plot 54 ft. long and 48 ft. wide?

10. The difference between two numbers is 74638, and the smaller number is 498625. Find the larger number.

11. A man bought land at $28 an acre, paying $12880 for it, and sold it at $32 an acre. How much did he gain?

12. What is the average price of 25 cows, if 13 of them are bought at $50 a head and the others at $75 a head?

To the Teacher. — Teach 41 . . . 46.

LESSON 19. 1. Learn 41 . . . 46.

2. Divide 26130 by 39. 3. 493833 ÷ 49.

4. Divide 732651 by 39. 5. 72396 × 698.

6. Multiply 18 bu. 2 pk. 7 qt. by 9.

7. Find the difference between 487695 and 4368798.

8. How many coats, at $24 a piece, will cost $1320?

9. What number added to 269875 will make 1274354?

10. How many cubic yards are there in 18246 cubic feet?

11. $794 + \overline{22 + 38} \times 9 - (75 - 9 \times 8 + \overline{16 - 7} \times 12)$.

12. The product of two numbers is 8947, and one of them is 23. Find the other number.

13. How many gallons will a vat hold that is 4 ft. long, 3 ft. wide, and 2 ft. deep?

14. A farmer has 186 bushels of wheat in one bin, 276 bushels in a second bin, and 47 bushels less in a third bin than in both the others. How many bushels of wheat has he?

LESSON 20. 1. Learn 41 . . . 46.

2. Divide 40542 by 59. 3. 31533 ÷ 69.

4. Multiply 7356 by 789. 5. 7856 × 958.

6. Divide 71 yd. 9 in. by 9. 7. $424 – $248.36.

8. Add 6273, 7384, 8495, 5948, 4837, 3726, and 7968.

9. What number besides 89 will exactly divide 8633?

10. Find the value of 16½ bushels of potatoes at 35 cents a peck.

11. A man had $54000 and lost $\frac{2}{5}$ of it in speculation. How much had he left?

12. A man bought 144 sheep at a uniform price, paying $540 for them.

13. How many squares one inch on each side can be cut from a piece of paper 2 ft. long and 8 in. wide?

14. If the divisor is 218, the remainder 92, and the quotient 172, what is the dividend?

15. A man bought land for $15360 and sold it for $20160, thereby gaining $3.75 an acre. Find the cost per acre.

LESSON 21.

1. Learn 41 . . . 46.
2. Divide 795293 by 79.
3. 48780 ÷ 89.
4. Multiply 462718 by 940.
5. 7280 × 369.
6. Reduce 799 dry pints to higher denominations.
7. Add 564, 739, 6844, 5837, 73642, 83267, and 56789.
8. $738 - 14 + 32 \div 2 - (\overline{7 + 13} \times 6 + 7 \times \overline{15 - 4})$.
9. Add 19 bu. 7 qt., 3 pk. 6 qt., 18 bu. 2 pk. 5 qt., 1 pk. 7 qt., and 7 bu. 3 pk. 6 qt.
10. The sum of two numbers is 138457, and one of them is 48589. What is the other number?
11. How many gallons will a tank hold that is 44 in. long, 35 in. wide, and 18 in. deep?
12. A man gave his older daughter $575, his younger daughter $150 less, and his son $485 more than he gave to both daughters. How much did he give to all?
13. A farmer raised 146 bushels of potatoes one year, the next year twice as many, and the third year three times as many as he had the second year. How many did he raise in the three years?

LESSON 22.

1. What number is $\frac{5}{9}$ of 3996?
2. Divide 11849 by 18.
3. 7394 × 869.
4. Multiply 73854 by 698.
5. 143640 ÷ 19.
6. From 112 yd. 2 ft. subtract 47 yd. 8 in.
7. Reduce 12 sq. yd. 2 sq. ft. 75 sq. in. to square inches.
8. Add $47.82, $.76, $8.58, $75, $9.67, and $7.89.

9. The product of two numbers is 9100, and one of them is 28. What is the other number?

10. If the divisor is $59, the quotient 284, and the remainder $28, what is the dividend?

11. How many square yards are there in a grass-plot that is 25 yd. square?

12. The difference between two numbers is 48763, and the larger number is 126492. What is the smaller number?

13. A father divided a sum of money equally among his five children, giving each one $675. How much did he give to all?

14. Two men are 268 miles apart. If they travel toward each other, one 4 miles an hour and the other 3 miles an hour, how far apart will they be at the end of 35 hours?

LESSON 23.

1. Learn 1 . . . 12.
2. Divide 13608 by 28. 3. 24329 ÷ 27.
4. Divide 140009 by 28. 5. 1903273 ÷ 38.
6. Multiply 58473 by 697. 7. $311 – $59.71.
8. Find the difference between 7432146 and 953478.
9. How many square yards are there in 1674 sq. ft.?
10. $379 + 9 \times (75 + 85) - (5 \times \overline{16 + 14} - \overline{48 - 18} \times 3)$.

11. A man paid $1140 for sheep at $4.75 a head and sold them at $6.25 a head.

12. The product of two numbers is 12325, and one of them is 25. What is the other number?

13. A lady paid $85 for a cloak and $27.75 less for a dress. How much did she pay for both?

14. How many cubic inches are there in a block of marble 4 ft. long and six inches square at the ends?

TO THE TEACHER. — Have pupils write numbers from dictation and read numbers written on the board.

LESSON 24.

1. Learn 13 . . . 22.

2. Divide 16500 by 29.

3. 18525 ÷ 39.

4. Divide 63 gal. by 8.

5. 7965 × 879.

6. What number besides 103 will exactly divide 24823?

7. At 8 cents a quart, what cost 40 gallons of vinegar?

8. A man's salary is $1800, and he spends $\frac{5}{8}$ of it. How much does he save?

9. If the divisor is 57, the quotient $85, and the remainder $35, what is the dividend?

10. How many square inches of paper will it take to cover a box 14 in. long, 9 in. wide, and 8 in. high?

11. A man earns $36.75 a week, which is five times as much as his son earns. How much do both earn?

12. Bought 18 acres of land at $90 an acre, and 27 acres at $135 an acre. Sold it all at $160 an acre. Find the average price paid, the gain per acre, and the sum received for it.

LESSON 25.

1. Learn 23 . . . 26.

2. Divide 22040 by 38.

3. 19000 ÷ 39.

4. Multiply 92738 by 708.

5. 7548 × 697.

6. Change 391 liquid pints to higher denominations.

7. $9 \times (48 + 65) + 128 \div 4 - (8 \times \overline{12 + 7} - 8 \times 8) \times 7.$

8. Add 4367, 84389, 76578, 7346, 4368, 795, and 85769.

9. Add 15 gal. 2 qt. 1 pt., 16 gal. 1 pt. 3 gi., 8 gal. 3 qt. 2 gi., 9 gal. 1 pt. 3 gi., and 1 gal. 1 pt. 1 gi.

10. A man lost $1275 on a farm, which he sold for $12525. How much would he have received for it, if he had sold it at a profit of $2750?

11. The sum of two numbers is 492350, and one of them is 293462. What is the other number?

12. How many inch cubes are there in a block one yard long, 18 in. wide, and 8 in. thick?

13. A man who had $2784 in the bank drew out $487.86 at one time, $786 at another time, and $679.59 at another time. He then deposited $1674.48. How much had he in the bank then?

LESSON 26.

1. Learn 27 . . . 32.

2. Divide 1843263 by 48.

3. 27880 ÷ 49.

4. Multiply 4635 by 879.

5. 8697 × 4253.

6. What cost 68 yd. of silk at $2.75 a yard?

7. From 82 bu. 3 pk. subtract 47 bu. 1 pk. 5 qt.

8. Add $78.59, $.66, $17.49, $97, $8.69, $38, and $8.86.

9. At 4 cents an ounce, how much will 5½ pounds of tea cost?

10. At $1.25 a bushel, how many bushels of wheat cost $5500?

11. A man bought 168 sheep at $5 a head. He sold $\frac{4}{7}$ of them at $6 a head, and the remainder at $7 a head.

12. How many square yards are there in a piece of paper 36 yd. long and 4 ft. wide?

13. The difference between two numbers is 24760, and the smaller number is 43892. What is the larger number?

14. Eight men bought houses for $240000 and sold them for $266000. How much did each one gain?

LESSON 27.

1. Learn 33 . . . 40.

2. Divide 21227 by 58.

3. 890 × 760.

4. Divide $4437 by 58.

5. 27602 ÷ 59.

6. Multiply 43267 by 840.

7. $1989 ÷ $29.25.

8. Multiply 18 yd. 2 ft. 9 in. by 8.

9. How many pecks are there in 1322 quarts?

10. Find the difference between 784538 and 7216824.

11. $746 + 16 \times 7 + (7 \times 14) \div 2 - (46 - 28 + 4 \times 7)$.

12. Mr. Brown sold his farm for $8415 and gained $715. For how much must he have sold it to gain three times as much?

13. The product of two numbers is 100089, and the multiplier is 27. What is the multiplicand?

14. Find the number of cubic feet of air in a room 28 ft. long, 18 ft. wide, and 13 ft. high.

15. At $2.45 a rod, how much will it cost to build a fence around a field, two sides of which are each 76 rods, one side 63 rods, and the remaining side 48 rods?

LESSON 28.

1. Learn 41 . . . 46.

2. Divide 46716 by 68.

3. $26702 \div 69$.

4. Multiply 6379 by 8458.

5. 8700×6900.

6. Find $\frac{3}{5}$ of $71\frac{1}{4}$ pounds.

7. $643 — $96.42.

8. Divide 74 gal. 1 qt. 1 pt. 2 gi. by 6.

9. How many cubic feet are there in 14 cords?

10. Of what number is 263 both divisor and quotient?

11. What number beside 149 will exactly divide 11771?

12. At $4.50 a barrel, how many barrels of flour can be bought for $2160?

13. How many square inches are there in a piece of paper 4 yards long and seven inches wide?

14. A speculator bought 43280 pounds of wool at 26 cents a pound. He lost 4192 pounds by fire and sold the remainder at 34 cents a pound. How much did he gain or lose?

To THE TEACHER. — Have pupils write numbers from dictation and read numbers written on the board.

LESSON 29.

1. Find $\frac{7}{9}$ of 79 yd.

2. Divide 156608 by 78. 3. 36182 ÷ 79.

4. Multiply 563407 by 508. 5. 5680 × 879.

6. Reduce 567 gills to higher denominations.

7. Add 764, 863, 7492, 9235, 48726, 24675, and 97685.

8. $859 - (12 \times 35) \div 7 - \overline{96 - (12 - 9) \times 15 + 48 \div 6}$.

9. Add 15 yd. 2 ft., 16 yd. 8 in., 17 yd. 2 ft. 9 in., 8 yd. 11 in., 3 ft. 7 in., and 8 yd. 2 ft. 6 in.

10. The sum of two numbers is 723458, and one of them is 480275. What is the other number?

11. How many cubic feet of water will a cistern hold that is 12 ft. square and 7 ft. deep?

12. I bought apples for $248 and sold them at a profit of $78.75. How much did I receive for them?

13. What is the average price of five horses, costing $125, $140, $150, $185, and $250 respectively?

LESSON 30.

1. Multiply 96847 by 689.

2. Divide 58625 by 88. 3. 69153 ÷ 89.

4. Reduce 6 rd. 12 ft. 7 in. to inches.

5. Find the difference between 3684253 and 3710021.

6. Add $49.13, $7.38, $.75, $9.45, $86, $7.86, and $96.

7. From 42 sq. yd. 7 sq. ft. 78 sq. in. subtract 28 sq. yd. 8 sq. ft. 96 sq. in.

8. If the divisor is $29, the quotient 196, and the remainder $17, what is the dividend?

9. Each of nine men has 345 acres of land. How many acres have all?

10. The smaller of two numbers is contained 18 times in 1350, and the larger is 44 times the smaller. Find the numbers.

11. The difference between two numbers is 42780, and the larger number is 78273. What is the smaller number?

12. How many square feet of boards will it take to build a tight board fence 124 ft. long and 5½ ft. high?

13. In a mixture of corn, rye, and oats there are 280 bushels, ⅝ of which is corn. How much corn is there?

LESSON 31. 1. Multiply 19 bu. 3 pk. 7 qt. by 7.

2. Divide 27316 by 39. 3. 35442 ÷ 99.

4. Divide 558600 by 98. 5. 7860 × 849.

6. Multiply 769 by 587. 7. 531073 ÷ 59.

8. How many yards are there in 260 feet?

9. Add 8769, 4859, 4965, 9376, 3729, 7384, and 5486.

10. Find the difference between 8434602 and 85347216.

11. A man bought a farm for \$7325 and sold it for \$6450.

12. $726 + 578 - 5 \times \overline{75 + 6 \times (14 - 6) - (144 + 84) \div 4}$.

13. The product of three numbers is 3780, and two of them are 14 and 15. What is the other number?

14. How many cubic inches are there in a stick of timber one yard long and one foot square at the ends?

15. Two men are 186 miles apart. If they travel away from each other, one 46 miles a day and the other 37 miles a day, how far apart will they be at the end of the first day?

LESSON 32. 1. Multiply 48695 by 768.

2. Divide 85860 by 180. 3. 130727 ÷ 190.

4. Divide 312046 by 89. 5. \$536 – \$267.05.

6. Divide 37 sq. yd. 3 sq. ft. 56 sq. in. by 5.

7. How many cubic inches are there in 28 cubic feet?

8. Add 7384, 8495, 9573, 8462, 7869, 4352, and 9687.

9. At what price can a miller buy 780 bushels of wheat for \$741?

10. How many bushels of potatoes, at 75 cents a bushel, cost $630?

11. If the dividend is 121694, the quotient 428, and the remainder 142, what is the divisor?

12. How many square yards are there in a ceiling that is 27 ft. long and 20 ft. wide?

13. A man drew $22500 from the bank and paid $\frac{5}{9}$ of it for a house and the remainder for a farm.

14. A man bought 1275 barrels of flour at $4.75 a barrel. He sold part of it at the same price, receiving $4009 for it. How many barrels had he left?

LESSON 33. **1.** Learn 1 . . . 12.

2. Divide 191080 by 281. **3.** 36475 × 968.

4. Multiply 431786 by 803. **5.** 229804 ÷ 292.

6. How many square yards are there in 707 square feet?

7. Add 58765, 4679, 74358, 8644, 3286, 985, and 74698.

8. $1648 + (42 \times 28) \div 7 - (63 \times 7 - 65 + 84 \div 7)$.

9. Add 8 bu. 2 pk. 1 pt., 6 bu. 7 qt. 1 pt., 8 bu. 3 pk. 7 qt., 2 pk. 5 qt., and 7 bu. 1 pk.

10. If the dividend is $6574, the quotient 75, and the remainder $49, what is the divisor?

11. Find the number of cubic feet of air in a room 13 ft. long, 9 ft. wide, and 8 ft. high.

12. The difference between two numbers is 72486, and the subtrahend is 41379. What is the minuend?

13. A lady spent $17.85 for a dress, $7.68 for a hat, $1.85 for gloves, and had $8.75 left. How much had she at first?

14. A and B are 78 miles apart. If they travel away from each other, A 4 miles an hour and B 5 miles an hour, *how far apart* will they be at the end of 46 hours?

LESSON 34.

1. Learn 13 . . . 22.

2. Divide 299270 by 383.

3. 7695 × 876.

4. What number is $\frac{5}{8}$ of 6152?

5. 278952 ÷ 394.

6. From 114 gal. 2 qt. 3 gi. subtract 46 gal. 2 qt. 1 pt.

7. Add $45.27, $8.46, $.88, $78.14, $65, and $9.34.

8. At 15 cents an inch, how much will 4 yards of gold wire cost?

9. A grocer bought 185 bushels of potatoes at 78 cents a bushel.

10. The product of three numbers is 28512, and two of them are 24 and 36. Find the other number.

11. How many 2-inch squares are there in a piece of tin 3 ft. long and 14 in. wide?

12. If a man pays $4680 for 18000 pounds of wool, for how much must he sell it per pound to gain $1080?

13. A man has one house worth $4850, another worth $14250, and 228 acres of land worth $175 an acre. How much more is the land worth than the two houses?

LESSON 35.

1. Learn 23 . . . 26.

2. Divide 3216479 by 480.

3. 8735 × 968.

4. Multiply 79280 by 450.

5. $2603 ÷ 38.

6. Divide $3002 by $39.50.

7. 278964 ÷ 492.

8. $913.64 is $187 greater than what sum?

9. Multiply 28 sq. yd. 5 sq. ft. 118 sq. in. by 6.

10. Reduce 2422 dry quarts to higher denominations.

11. Find the difference between 23100352 and 4234875.

12. $(785 + 378) \times 8 - (\overline{82 + 32} \times 7 - 168 - 28 \times 5)$.

13. What is the average price of 48 acres of land, if 26 acres cost $96 an acre and the remainder $144 an acre?

14. I have a block of marble 2 ft. long, 16 in. wide, and 9 in. thick. How many cubic inches does it contain?

15. A speculator bought 24000 bushels of wheat at 78 cents a bushel. For how much must he sell it per bushel to gain $1440?

LESSON 36.

1. Learn 27 . . . 32.

2. Divide 264479 by 580. **3.** $222592 \div 592$.

4. Multiply 37648 by 967. **5.** $642 – $257.41.

6. Divide 150 bu. 1 pk. 7 qt. by 9.

7. How many cubic feet are there in 16 cubic yards?

8. Add 6273, 7384, 8495, 5948, 4837, 3726, and 7698.

9. What number besides 491 will exactly divide 35843?

10. A farmer sold 460 bushels of potatoes at a uniform price, receiving $299 for them.

11. A man earns $26.25 a week, and his son earns $\frac{2}{7}$ as much. How much do both earn?

12. The difference between two numbers is 124728, and the minuend is 213947. Find the subtrahend.

13. What is the difference in the area of two gardens, one 42 yd. square and the other containing 874 sq. yd.?

14. A dealer sold 438 tons of coal at $4.75 a ton and a number of tons of another kind at $5.20 a ton. He received for all $4264.50. How many tons did he sell?

LESSON 37.

1. Learn 33 . . . 40.

2. Divide 65047 by 188. **3.** $56322 \div 199$.

4. Multiply 57896 by 847. **5.** 5700×89000.

6. How many bushels are there in 275 pecks?

7. Add 684, 478, 8487, 9568, 48643, 59327, and 97865.

8. $\overline{945 + 653} \times 6 - (45 + 56 \times 8 + 5 \times \overline{60 - 20})$.

9. Add 14 sq. yd. 8 sq. ft. 126 sq. in., 26 sq. yd. 86 sq. in., and 19 sq. yd. 7 sq. ft. 75 sq. in.

10. How many gallons will a tank hold that is 33 in. long, 28 in. wide, and 15 in. deep?

11. The product of three numbers is 33120, and two of them are 23 and 45. Find the other number.

12. A farmer received $286 for his wool, $145.78 more for his corn, and for his wheat $168 more than for both the others. How much did he receive for all?

13. A man has 176 acres in one farm, 268 acres in another, and in a third 96 acres less than in both the others. How many acres has he in the three farms?

LESSON 38. **1.** Learn 41 . . . 46.

2. Divide 134784 by 288. **3.** 1405598 ÷ 299.

4. Reduce 18 gal. 2 qt. 1 pt. 3 gi. to gills.

5. From 72 yd. 10 in. subtract 27 yd. 1 ft. 11 in.

6. Of what number is 426 both divisor and quotient?

7. Add $58.43, $7.65, $.89, $47.16, $6.49, and $4.56.

8. If the dividend is $13274, the quotient 276, and the remainder $26, what is the divisor?

9. A man bought 320 acres of land at $7 an acre. He sold $\frac{3}{8}$ of it at $9 an acre, and the remainder at $8 an acre.

10. How many square feet of plastering are there in the ceiling of a room 38 ft. long and 23 ft. wide?

11. A man divided a sum of money equally among eight poor boys, giving each one $7.65. How much did he give to all?

12. A man has 347 sheep in four fields. In the first he has 75, in the second 96, and in the third the same number as in the fourth. How many has he in the third?

LESSON 39.

1. Multiply 79684 by **976.**
2. Divide 63223 by 79.
3. 741048 ÷ 39.
4. Divide 219428 by 387.
5. 190244 ÷ 398.
6. Multiply 47 gal. 3 qt. 1 pt. by 9.
7. What number added to 4786 will give 12455?
8. How many square yards are there in 2570 sq. ft.?
9. Find the difference between 6594573 and 62374896.
10. $958 + (144 \div 12) \times 15 - (\overline{18 - 3} \times 6 + 79 - \overline{53 + 48})$.
11. The difference between two numbers is 48645, and the subtrahend is 43784. Find the minuend.
12. How many inch cubes can be put into a box 28 in. long, 17 in. wide, and 13 in. deep?
13. A has $468, B has twice as much less $79.43, and C has $74 more than three times as much as B. How much have all?
14. A man bought 1800 acres of western land at $8 an acre. For how much must he sell it per acre to gain $4500?

LESSON 40.

1. Divide 151 yd. 1 ft. by 8.
2. Divide 271026 by 478.
3. 338141 ÷ 498.
4. Multiply 37649 by 856.
5. $215.34 — $137.
6. Find $\frac{2}{5}$ of 29 bu. 1 pk. 4 qt.
7. Reduce 4 square yards to square inches.
8. Add 7386, 8495, 3628, 4893, 6978, 5412, and 8465.
9. If the dividend is $13039, the quotient $138, and the remainder $67, what is the divisor?
10. At $.95 a bushel, how many bushels of wheat can be bought for $7220?
11. The product of three numbers is 44352, and two of them are 16 and 42. What is the other number?

12. A blackboard is 18 ft. long and 3 ft. 4 in. wide. How many square feet does it contain?

13. Two men start from two cities 384 miles apart, and travel toward each other, one 8 miles a day and the other 12 miles a day. How far apart will they be at the end of 12 days?

To the Teacher. — Have pupils write numbers from dictation and read numbers written on the board.

LESSON 41.

1. Multiply 45687 by 496.

2. Divide 475524 by 612. 3. $199864 \div 301$.

4. Reduce 371 dry quarts to higher denominations.

5. Add 47683, 58497, 6532, 9245, 867, 94, and 438.

6. $\overline{1240 - 465} \times 9 - (\overline{86 + 14} \times 4 - \overline{24 + 16} \times 4)$.

7. Add 47 bu. 2 pk., 67 bu. 5 qt., 85 bu. 2 pk. 7 qt., 59 bu. 6 qt., and 37 bu. 3 pk.

8. If the dividend is 19057, the quotient 96, and the remainder 49, what is the divisor?

9. A speculator sold land for $8750 and lost $2465. How much would he have received for it, if he had gained $1475?

10. Find the number of cubic inches in a block one yard long, 8 in. wide, and 6 in. thick.

11. A farmer sold five cows for $45, $65, $70, $85, and $125 respectively. What was the average price received for them?

12. A man bought flour for $20250 and sold it for $21600, thereby gaining $.30 a barrel. Find the number of barrels bought and the cost per barrel.

LESSON 42.

1. Multiply 73694 by 876.

2. Divide 1760225 by 905. 3. $1445204 \div 802$.

4. A farmer sold 238 sheep at $4.65 a head.

5. At $2.25 a yard, how many yards of silk cost $54?

6. At $.08 an ounce, what cost $8\frac{1}{2}$ pounds of mace?

7. Add $74, $7.86, $.67, $64.18, $45, $9.84, and $76.58.

8. From 43 sq. yd. 5 sq. ft. 42 sq. in. subtract 17 sq. yd. 5 sq. ft. 86 sq. in.

9. There are 243 trees in a grove $\frac{4}{9}$ of which are maple-trees.

10. The difference between two numbers is 28746, and the minuend is 47628. What is the subtrahend?

11. The ceiling of a room is 15 ft. wide and four yards long. How many square feet are there in it?

12. A park is 48 rods long and 32 rods wide. How many times must a man go around it to travel 45 miles?

13. A merchant made a profit of $183 on 244 yards of silk, which he sold at $2.25 a yard. Find the cost per yard.

LESSON 43. 1. Learn 1 . . . 12.

2. Divide 5173302 by 834. 3. 5976 × 837.

4. Multiply 48273 by 364. 5. 3156584 ÷ 722.

6. Multiply 47 gal. 3 qt. 1 pt. 2 gi. by 9.

7. How many gallons are there in 1943 quarts?

8. Find the difference between 36452160 and 7654794.

9. $468 + (42 \times 15) \div 7 - (89 - 7 \times 7) \times 6 + 1728$.

10. Add 7869, 9876, 8769, 7698, 6987, 4352, and 8495.

11. A grocer sold potatoes for $214 and made a profit of $28.65. How much did he pay for them?

12. The product of three numbers is 115200, and two of them are 40 and 48. Find the other number.

13. How many cubic inches are there in a piece of slate *4 feet square* and one inch thick?

14. Two men are 265 miles apart. If they travel toward each other, one 16 miles a day and the other 14 miles a day, how far apart will they be at the end of six days?

LESSON 44.

1. Learn 13 . . . 22.

2. Divide $7742 by 79.

3. 5925888 ÷ 643.

4. Multiply 3265 by 978.

5. $435 – $268.21.

6. Divide 3214664 by 566.

7. $2742.75 ÷ $39.75.

8. Divide 142 yd. 2 ft. 8 in. by 8.

9. How many rods are there in 8½ miles?

10. What number besides 593 will exactly divide 573431?

11. A merchant sold 644 yards of silk at a uniform price, receiving $483 for it.

12. A lady paid $\frac{5}{7}$ of $19.25 for a hat and the remainder for a pair of shoes. Find the cost of each.

13. How many square yards are there in a lawn 180 ft. long and 135 ft. wide?

14. A merchant bought flour for $4976. He sold it for $5909 and gained $.75 a barrel. Find the number of barrels bought and the cost per barrel.

LESSON 45.

1. Learn 23 . . . 26.

2. Multiply 63918 by 740.

3. 978 × 569.

4. Divide 14293624 by 675.

5. 6923070 ÷ 555.

6. How many bushels are there in 315 pecks?

7. Add 94, 843, 758, 9386, 73649, 86967, 4382, and 857.

8. $1876 + (45 \times 16) \div 9 - 7 \times (128 - 12 \times 9) + 72 + 28$.

9. Add 46 sq. yd. 4 sq. ft. 116 sq. in., 56 sq. yd. 128 sq. in., and 57 sq. yd. 8 sq. ft. 136 sq. in.

10. The difference between two numbers is 74641, and the subtrahend is 28738. Find the minuend.

11. If I buy 844 sheep at $4.25 a head, for how much must I sell them per head to gain $1055?

12. A man bought property for $4750 and sold it at a profit of $875. How much did he receive for it?

13. How many 3-inch cubes are there in a block 2 ft. long, 9 in. wide, and 6 in. thick?

14. A farmer raised 4512 bushels of wheat on 188 acres. What was the average yield per acre?

LESSON 46.

1. Learn 27 . . . 32.
2. Multiply 58693 by 578.
3. 3794 × 687.
4. Divide 56243121 by 686.
5. 489765 ÷ 985.
6. Reduce 12 rd. 4 yd. 2 ft. 7 in. to inches.
7. From 118 bu. 6 qt. subtract 79 bu. 2 pk. 7 qt.
8. Add $4.63, $168, $43.84, $.75, $8.42, and $57.

9. If the dividend is $27430, the quotient 78, and the remainder $286, what is the divisor?

10. A boy earned $18. He spent $\frac{5}{8}$ of it for a suit of clothes and the remainder for a hat and shoes.

11. If each of seven men has 465 acres of land, how many acres have all?

12. The product of three numbers is 83160, and two of them are 24 and 45. Find the other number.

13. How many half-inch squares are there in a sheet of paper 14 in. long and 8 in. wide?

14. A man bought 8 horses at $125 a head and 17 at $175 a head. He sold all at $165 a head. How much did he gain or lose per head?

LESSON 47.

1. Learn 33 . . . 40.
2. Divide 142157 by 49.
3. 53724 × 486.
4. Divide 692348726 by 897.
5. 476073 ÷ 68.

6. Multiply 39 yd. 2 ft. 9 in. by 7.

7. Reduce 627 liquid pints to higher denominations.

8. Find the difference between 67593284 and 42678500.

9. $480 + (39 \times 17) \div 13 - 280 - (\overline{63 \div 7} \times 12) \div 4$.

10. If the quotient is 793, the remainder 200, and the divisor 299, what is the dividend?

11. A farmer wished to raise $198. He sold 36 barrels of apples at $2.50 a barrel, and enough potatoes at $.75 a bushel to make up the required sum. How many bushels of potatoes did he sell?

12. How many 2-inch cubes are there in a piece of marble 18 in. long, 16 in. wide, and 8 in. thick?

13. Bought 160 acres of land for $7680, and sold 85 acres of it at $65 an acre, and the remainder at cost. Find the whole sum received for it and the gain.

LESSON 48. 1. Learn 41 . . . 46.

2. Multiply 62953 by 857. 3. 312645 ÷ 678.

4. Divide 496839192 by 1047. 5. $254.25 – $179.

6. Divide 179 gal. 2 qt. 1 pt. 3 gi. by 9.

7. Add 7368, 8497, 6298, 5943, 4879, 5638, and 8976.

8. At 4 cents apiece, what cost 5½ gross of pencils?

9. If the divisor is 88, the quotient $165, and the remainder $75, what is the dividend?

10. A grocer bought 4050 pounds of cheese at 8 cents a pound. He sold $\frac{5}{9}$ of it at 9 cents a pound and the remainder at 9½ cents a pound.

11. The difference between two numbers is 84276, and the minuend is 137483. What is the subtrahend?

12. A man gave his son $3150, which was seven times as much as he gave his daughter. How much did he give to both?

13. How many square inches are there in a piece of ribbon 9 yd. long and 2½ in. wide?

14. A farmer sold 23 barrels of pears at $3.50 a barrel and 27 barrels at $5.50 a barrel. Find the average price.

LESSON 49. **1.** Multiply 31796 by 847.

2. Divide 1250037 by 785. **3.** 730594 ÷ 893.

4. How many square yards are there in 785 sq. ft.?

5. Of what number is 374 both divisor and quotient?

6. $943 - 8 \times (\overline{42 - 20} \times 6 - 85 + \overline{28 \times 5} \div 7) + 589$.

7. Add 458347, 79586, 6848, 972, 58, 486, 584, and 798.

8. Add 78 bu. 3 pk., 59 bu. 7 qt., 67 bu. 2 pk. 5 qt., 39 bu. 6 qt., and 58 bu. 2 pk. 4 qt.

9. Find the number of cubic inches in a block 2 ft. long, 1 ft. wide, and 9 in. thick.

10. A man sold 128 sheep at $6.25 a head and a number of others at $6.50 a head. He received for all $1359. How many did he sell?

11. How many pounds of sugar, at 6 cents a pound, can be bought for 24 dozen eggs at 18 cents a dozen and 18 pounds of butter at 32 cents a pound?

12. If a man buys sheep at $4.75 a head, and pays $418 for them, at what price per head must he sell them to gain $132?

To the Teacher.—Teach 47 . . . 57.

LESSON 50. **1.** Learn 1 . . . 46.

2. Divide 6742051 by 89. **3.** 8544130 ÷ 96.

4. Divide 1372046 by 478. **5.** 75869 × 9786.

6. Find $\frac{7}{9}$ of 67¼ yards. **7.** 5100321 ÷ 569.

8. *Multiply* 27 gal. 3 qt. 1 pt. 3 gi. by 9.

9. If the dividend is $68000, the quotient 86, and the remainder $490, what is the divisor?

10. How many gallons will a tank hold that is 6 ft. long, 3 ft. 6 in. wide, and 2 ft. deep?

11. A speculator bought land for $2200 and sold it for $2695, thereby gaining $4.50 an acre. Find the cost per acre.

12. Find the number of square yards in the walls and ceiling of a room 18 ft. long, 14 ft. 6 in. wide, and 10 ft. high.

13. A man bought land at $125 an acre, paying $20000 for it. He afterward bought 90 acres more at $175 an acre. Find the average price paid for it all.

14. A merchant sold goods for $793 and gained $89.65. How much would he have received for them, if he had gained $168.74?

FIFTH GRADE—SECOND TERM.

LESSON 1. 1. Learn 47 . . . 57.

2. What are the prime factors of 48 and 72?

3. What are the prime factors of 280 and 693?

4. What are the prime factors of 189 and 225?

5. What are the prime factors of 272 and 1625?

6. $840 - \overline{81 \div 9} \times 7 - (120 \div 6 + 30 - 26) \times 7$.

7. How many square inches are there in a piece of paper 5 yards long and 4 feet wide?

8. A man paid $\frac{3}{5}$ of $750 for a span of horses and the remainder of it for a carriage. Find the cost of each.

9. At nine cents a quart, how many quarts of cherries can be bought for $14.94?

10. How many cubic inches are there in a stick of timber two yards long and 9 inches square at the ends?

11. A man bought wheat for $39600 and sold it for $42750, thereby gaining 7 cents a bushel. Find the number of bushels bought and the cost per bushel.

LESSON 2. 1. Learn 47 . . . 57.

2. Divide 474029 by 790. 3. $406063 \div 58$.

4. Find the prime factors of 112 and 385.

5. Find the prime factors of 441 and 900.

6. Find the prime factors of 585 and 1764.

7. Reduce 46 square feet to square inches.

8. Find the prime factors of 1197 and 2275.

9. The difference between two numbers is 6974, and the smaller number is 2648. What is the larger number?

10. A man raised 600 bushels of potatoes and sold $\frac{3}{8}$ of them at $.55 a bushel and the remainder at $.85 a bushel.

11. How many 2-inch squares are there in a piece of paper 8 ft. long and 18 in. wide?

12. A merchant sold flour for $2845 and lost $275.85. How much would he have received for it, if he had gained $316?

13. At the rate of $5.95 for 7 bushels of potatoes, how many bushels can be bought for $37.40?

To the Teacher. — Teach 58 and 59.

LESSON 3. 1. Learn 47 . . . 58.

2. Divide 112 × 40 × 18 by 56 × 6 × 4.

3. Find the prime factors of 2205 and 3025.

4. From 46 bu. 2 pk. subtract 28 bu. 3 pk. 6 qt.

5. What are the prime factors of 3915 and 1312?

6. Reduce 3742 dry quarts to higher denominations.

7. $758 + (14 \times 9) \div 7 - \overline{8 \times 5 \times 6 - 180 \div 3} + 84 \times 7.$

8. What is the quotient of 28 × 56 × 15 divided by 14 × 5 × 6?

9. What is the quotient of 18 × 6 × 8 × 84 divided by 4 × 9 × 3 × 7 × 6?

10. Find the number of cubic feet of air in a room 13 ft. long, 10 ft. wide, and 8 ft. high.

11. If a man buys 12465 pounds of wool at 28 cents a pound, for how much must he sell it per pound to gain $623.25?

12. How far can a man travel in 46 days at the rate of 116 miles in 8 days?

13. A man sold a house for $6450 and lost $1050. How much would he have gained or lost, if he had sold it for $6250?

LESSON 4.

1. Find $\frac{3}{7}$ of 16 gal. 2 qt. 1 pt.

2. Divide the product of 21 × 8 × 30 × 8 × 6 by 7 × 12 × 3 × 8 × 3.

3. What prime numbers multiplied together will give 539 and 1155?

4. Divide the product of 15 × 38 × 36 × 35 by 3 × 12 × 19 × 25.

5. If the divisor is $88, the quotient 76, and the remainder $59, what is the dividend?

6. A man bought 465 sheep at $4.85 a head and sold them for $2875.

7. Divide the product of 17 × 95 × 16 × 25 by 85 × 38 × 5 × 2.

8. A boy gathered six and one-half bushels of chestnuts, which he sold at 12 cents a quart.

9. Multiply 75 × 10 by 3 × 12, and divide the product by 15 × 25 × 12 × 2. Solve by cancellation.

10. What is the difference in the area of two gardens, one 42 yards square and the other containing 874 square yards?

TO THE TEACHER. — Teach 60 . . . 65.

LESSON 5.

1. Learn 60 . . . 65.

2. Multiply 14 yd. 2 ft. 8 in. by 6.

3. Find the prime factors of 1593 and 3904.

4. How many gallons are there in 1392 pints?

5. Find the greatest common factor of 169 and 195.

6. Find the greatest common divisor of 187 and 418.

7. Find the greatest common factor of 54, 66, and 78.

8. Simplify $893 - 854 \div 7 - (\overline{4 \times 15} \div 5 - 121 \div 11)$.

9. Divide $7 \times 40 \times 48$ by $63 \times 4 \times 5 \times 17$, and multiply the quotient by 51.

10. The sum of two numbers is 12346, and one of them is 7469. Find the other number.

11. What is the largest number that will exactly divide 36, 60, 84, and 96?

12. How many cubic inches are there in a block of marble 2 ft. long, 16 in. wide, and 8 in. thick?

13. What is the largest number that will exactly divide 14, 42, 63, and 91?

14. A lady bought two pounds of tea at 65 cents a pound, and three pounds at 85 cents a pound. Find the average price per pound.

LESSON 6. 1. Learn 60 . . . 65.

2. Divide 47 gal. 1 pt. 2 gi. by 5.

3. Find the G. C. D. of 672, 352, and 992.

4. Reduce 27 sq. yd. 5 sq. ft. to square inches.

5. What are the prime factors of 1935 and 2556?

6. Find the greatest common factor of 433 and 977.

7. What number besides 29 will exactly divide 1943?

8. The difference between two numbers is 132650, and the larger number is 346798. Find the smaller number.

9. What is the largest number that will exactly divide 630, 1134, and 1386?

10. If 420 barrels of flour cost $1785, how much will 375 barrels cost?

11. How many square feet of plastering are there in the ceiling of a room 36 ft. long and 24 ft. wide?

12. What is the largest number that will exactly divide 462, 759, and 1155?

13. How many pounds of tea, at 65 cents a pound, are worth as much as 130 dozen eggs at 18 cents a dozen?

TO THE TEACHER. — Teach 66 . . . 70.

LESSON 7.

1. Learn 66 . . . 70.

2. How many quarts are there in 1408 gills?

3. Find the greatest common divisor of 521 and 971.

4. Find the least common multiple of 22, 55, and 77.

5. Find the greatest common divisor of 3768 and 3596.

6. Find the least common multiple of 48, 60, and 180.

7. Divide 42 × 18 × 65 × 11 × 70 by 35 × 45 × 13.

8. Find the least common multiple of 6, 8, 10, 15, 18, 20, and 24.

9. Add 9 yd. 2 ft., 7 yd. 9 in., 8 yd. 1 ft. 8 in., 9 yd. 1 ft., and 11 yd. 2 ft. 10 in.

10. The product of two numbers is 11826, and one of them is 54. Find the other number.

11. How many gallons will a tank hold that is 33 in. long, 28 in. wide, and 15 in. deep?

12. Find the smallest number that is exactly divisible by 10, 64, and 96.

13. Bought 160 acres of land at $24 an acre. For how much must I sell it per acre to gain $1280?

TO THE TEACHER. — Teach 71 . . . 80.

LESSON 8.

1. Learn 66 . . . 80.

2. What number is $\frac{5}{7}$ of 2849?

3. Find the prime factors of 1908 and 2541.

4. What cost 8 rods of wire at two cents a foot?

5. Find the greatest common factor of 479 and 829.

6. Find the least common multiple of 50, 70, and 95.

7. Find the least common multiple of 81, 63, and 135.

8. Find the greatest common divisor of 1938 and 1666.

9. If the divisor is 78, the quotient $180, and the remainder $65, what is the dividend?

10. Find the smallest number that is exactly divisible by 32, 64, 80, and 112.

11. A blackboard is 36 ft. long and 3 ft. 4 in. wide. How many square feet does it contain?

12. Seven men bought land for $18412 and sold it for $27288. How much did each gain?

13. Find the smallest number that is exactly divisible by 12, 24, 36, and 96.

To the Teacher. — Teach 81 . . . 87.

LESSON 9. 1. Learn 71 . . . 87.

2. Reduce $\frac{6}{7}$, $\frac{3}{5}$, and $\frac{8}{10}$ to thirty-fifths.

3. Reduce $\frac{2}{3}$, $\frac{3}{4}$, and $\frac{7}{8}$ to twenty-fourths.

4. Find the L. C. M. of 28, 50, 56, and 70.

5. Reduce 249 gills to higher denominations.

6. Reduce $\frac{81}{189}$ and $\frac{195}{210}$ to their lowest terms.

7. Reduce $\frac{216}{414}$ and $\frac{128}{198}$ to their lowest terms.

8. Reduce $\frac{32}{48}$, $\frac{96}{108}$, $\frac{21}{28}$, and $\frac{120}{144}$ to their lowest terms.

9. From 27 gal. 3 qt. subtract 19 gal. 3 qt. 1 pt. 2 gi.

10. Find the smallest number that is exactly divisible by 66, 99, 135, and 168.

11. Divide 12 × 60 × 36 by 7 × 30 × 18 × 24 × 13, and multiply the quotient by 35 × 38.

12. A dealer sold 364 tons of coal at $4.75 a ton, 270 tons at $5 a ton, and 175 tons at $5.45 a ton.

13. How many inch cubes can be put into a box 3 ft. long, 18 in. wide, and 14 in. deep?

LESSON 10.

1. Learn 71 . . . 87.

2. Reduce $\frac{14}{16}$, $\frac{8}{14}$, and $\frac{15}{21}$ to 56ths.

3. Find the G. C. D. of 1088, 867, and 714.

4. Reduce $\frac{528}{984}$ and $\frac{856}{936}$ to their lowest terms.

5. Reduce $\frac{336}{364}$ and $\frac{1435}{1785}$ to their lowest terms.

6. Reduce $\frac{225}{255}$, $\frac{231}{273}$, and $\frac{315}{378}$ to their lowest terms.

7. Find the common prime factors of 2310 and 2604.

8. Find the greatest common divisor of 945 and 702.

9. How many cubic inches are there in 26 cubic feet?

10. Multiply the sum of 247 and 379 by four times their difference.

11. A man bought a span of horses and a carriage for $1050, paying $\frac{4}{7}$ of the amount for the horses.

12. The ceiling of a room is 24 ft. long and four yards wide. How many square feet does it contain?

13. A man bought wool for $1170 and sold it for $1395, thereby gaining 5 cents a pound. Find the cost per pound.

14. If I buy 13 sheep at $4.50 a head and 12 at $6.25 a head, what is the average price paid?

LESSON 11.

1. Learn 71 . . . 87.

2. Reduce $\frac{5}{7}$, $\frac{22}{30}$, and $\frac{24}{42}$ to 105ths.

3. Multiply 38 bu. 3 pk. 6 qt. by 7.

4. How many pecks are there in 477 quarts?

5. Reduce $\frac{63}{165}$, $\frac{240}{312}$, and $\frac{272}{425}$ to their lowest terms.

6. *Divide* 2 × 3 × 5 × 7 × 9 × 11 by 4 × 6 × 18 × 7.

7. Find the least common multiple of 84, 100, and 224.

8. Find the greatest common divisor of 141, 799, and 940.

9. Find the smallest number that is exactly divisible by 34, 51, 65, and 121.

10. Find the number of cubic inches in a block one yard long, 9 in. wide, and 8 in. thick.

11. How many barrels of flour worth $5 a barrel must be given for 35 tons of coal at $6 a ton?

12. If a man buys 40 sheep at $3.75 a head and 35 at $3 a head, what is the average price paid?

13. If a farm of 84 acres is worth $16380, how many acres of it are worth $5460?

To the Teacher. — Encourage pupils to use cancellation in the solution of problems whenever it will shorten the work.

LESSON 12. 1. Learn 47 . . . 57.

2. Divide 70 yd. 2 ft. 8 in. by 8.

3. Reduce 6 rd. 14 ft. 7 in. to inches.

4. Find the prime factors of 1035 and 1323.

5. Find the G. C. D. of 396, 5184, and 6914.

6. Change $\frac{6}{7}$, $\frac{4}{9}$, $\frac{5}{21}$, $\frac{15}{27}$, and $\frac{10}{35}$ to sixty-thirds.

7. Find the least common multiple of 225 and 375.

8. A man who had $22400 paid $\frac{3}{8}$ of it for a farm of 150 acres. Find the cost of the farm per acre and the amount of money he had left.

9. If the dividend is $2753, the quotient 59, and the remainder $39, what is the divisor?

10. How many square yards are there in a lawn 171 ft long and 144 ft. wide?

11. A man bought land at $12 an acre, paying $5160 for it, and sold it for $18 an acre.

12. What is the length of the longest line that will exactly measure two fences, one 96 and the other 76 rods long?

13. Bought a horse for $265 and a carriage for $185. How much was gained or lost, if both were sold for $325?

TO THE TEACHER. — Teach 88. Teachers will remember that rules must follow and grow out of practice.

LESSON 13. 1. Learn 60 . . . 70, also 88.

2. Find the G. C. D. of 620, 1116, and 1488.

3. Reduce $\frac{182}{196}$, $\frac{192}{224}$, and $\frac{300}{625}$ to their lowest terms.

4. How many square yards are there in 765 sq. ft.?

5. Reduce $\frac{145}{7}$, $\frac{248}{20}$, and $\frac{218}{15}$ to whole or mixed numbers.

6. Reduce $\frac{245}{8}$, $\frac{189}{13}$, and $\frac{468}{30}$ to whole or mixed numbers.

7. Reduce $\frac{214}{7}$, $\frac{248}{16}$, and $\frac{789}{40}$ to whole or mixed numbers.

8. Add 34 bu. 3 pk. 6 qt., 19 bu. 7 qt., 16 bu. 2 pk. 5 qt., 3 pk. 7 qt., and 17 bu. 2 pk.

9. If 35 bushels of wheat cost $28, what will 140 bushels cost at the same price? Solve by cancellation.

10. How many cubic inches are there in a 9-inch cube? In a 14-inch cube? In a 19-inch cube?

11. What is the smallest sum of money that can be paid in 2, 3, 5, 10, 25, or 50-cent coins?

12. Two men are 246 miles apart. If they travel toward each other, one 16 miles a day and the other 22 miles a day, how far apart will they be at the end of four days?

LESSON 14. 1. Learn 71 . . . 88.

2. Find the prime factors of 1110 and 8019.

3. What number besides 59 will exactly divide 4897?

4. Find the greatest common divisor of 326 and 807.

5. *Find* the greatest common divisor of 768 and 5184.

6. Reduce $\frac{428}{15}$, $\frac{736}{23}$, and $\frac{450}{20}$ to whole or mixed numbers.

7. Reduce $\frac{758}{32}$, $\frac{438}{17}$, and $\frac{789}{40}$ to whole or mixed numbers.

8. Add $65.84, $.98, $8.64, $86, $85.37, $.95, and $9.63.

9. Find the greatest common divisor of 144, 216, and 648.

10. A boy earned $6 and spent $\frac{3}{8}$ of it for a pair of shoes. How much had he left?

11. How many half-inch squares are there in a sheet of paper one yard long and 16 inches wide?

12. A man bought 486 acres of land at $65 an acre. He sold part of it at the same price, receiving $17810 for it. How many acres had he left?

TO THE TEACHER. — Teach 89.

LESSON 15. 1. Learn 86 . . . 89.

2. Reduce $\frac{3}{4}$, $\frac{12}{16}$, $\frac{2}{5}$, and $\frac{21}{35}$ to twentieths.

3. From 32 yd. 1 ft. subtract 19 yd. 1 ft. 7 in.

4. Reduce $14\frac{3}{5}$, $20\frac{5}{7}$, and $28\frac{5}{9}$ to improper fractions.

5. Reduce $16\frac{8}{9}$, $50\frac{8}{11}$, and $8\frac{17}{30}$ to improper fractions.

6. Reduce $40\frac{5}{11}$, $45\frac{13}{20}$, and $43\frac{3}{4}$ to improper fractions.

7. Reduce $\frac{252}{396}$, $\frac{264}{480}$, $\frac{360}{576}$, and $\frac{567}{783}$ to their lowest terms.

8. Reduce $\frac{416}{13}$, $\frac{780}{35}$, and $\frac{470}{40}$ to whole or mixed numbers.

9. Find the least common multiple of 15, 18, 25, 35, 45, and 100.

10. At $6.50 a head, how much more than $285 will 86 sheep cost?

11. How many 3-inch cubes are there in a block 3 ft. long, 9 in. wide, and 6 in. thick?

12. A farmer has seven bins, each containing 265 bushels of wheat. Besides this, he has sold 675 bushels. Find the value of his whole crop at $.86 a bushel.

13. At 20 cents a pound, how many tubs of butter, each weighing 30 pounds, must be given for 12 barrels of sugar, each weighing 210 pounds, at 5 cents a pound? Solve by cancellation.

LESSON 16. 1. Learn 86 . . . 89.

2. Change $\frac{2}{3}$, $\frac{25}{30}$, $\frac{18}{27}$, and $\frac{35}{84}$ to 36ths.

3. Find $\frac{2}{9}$ of 23 sq. yd. 1 sq. ft. 18 sq. in.

4. Reduce $\frac{1344}{1536}$ and $\frac{5643}{5940}$ to their lowest terms.

5. Find the common prime factors of 585 and 900.

6. Reduce $120\frac{5}{7}$, $80\frac{7}{30}$, and $79\frac{8}{9}$ to improper fractions.

7. Reduce $\frac{651}{7}$, $\frac{247}{12}$, and $\frac{476}{17}$ to whole or mixed numbers.

8. How many square inches are there in a piece of ribbon 8 yards long and 3 inches wide?

9. If the dividend is $4600, the quotient $58, and the remainder $76, what is the divisor?

10. A man bought 585 barrels of apples at $2.15 a barrel. He lost 35 barrels and sold the remainder at $2.75 a barrel. How much did he gain or lose?

11. The sides of a garden are 168, 280, 182, and 252 ft. respectively. What is the greatest length of boards that can be used in fencing it without cutting any of them?

TO THE TEACHER. — Teach 90.

LESSON 17. 1. Learn 86 . . . 90.

2. Multiply 26 gal. 3 qt. 1 pt. 2 gi. by 7.

3. Reduce $\frac{615}{619}$, $\frac{728}{784}$, and $\frac{291}{667}$ to their lowest terms.

4. Change 918 dry quarts to higher denominations.

5. $685 + 22 \times 8 - (160 - \overline{75 + 65} + \overline{12 + 8} \times 4)$.

6. Reduce $\frac{318}{18}$, $\frac{423}{42}$, and $\frac{487}{50}$ to whole or mixed numbers.

7. Reduce $\frac{5}{6}$, $\frac{7}{9}$, and $\frac{7}{12}$ to fractions having the least *common denominator*.

8. Reduce $\frac{1}{4}$, $\frac{7}{12}$, 3, and $\frac{17}{20}$ to fractions having the least common denominator.

9. Change $2\frac{3}{5}$, $\frac{11}{20}$, and $\frac{17}{30}$ to fractions having the least common denominator.

10. One half of one number is 486, and 4 times another number is 896. Find the sum of the two numbers.

11. How many 2-inch cubes are there in a piece of marble 2 ft. long, 18 in wide, and 8 in. thick?

12. A grocer exchanged 451 pounds of sugar at 6 cents a pound for eggs at 22 cents a dozen. Solve by cancellation and indicate what the answer represents.

13. What is the smallest sum of money that can be exactly expended either for sheep at $8, cows at $28, oxen at $54, or horses at $162 a head?

LESSON 18. 1. Learn 47 . . . 57.

2. Divide 103 bu. 3 pk. 5 qt. by 7.

3. How many pens are there in 24 gross?

4. Find the G. C. D. of 504, 672, and 1260.

5. Reduce $\frac{5}{7}$, $\frac{3}{4}$, $\frac{25}{35}$, and $\frac{12}{16}$ to twenty-eighths.

6. Find the greatest common divisor of 613 and 1274.

7. Find the greatest common factor of 1815 and 3465.

8. Reduce $200\frac{8}{11}$, $47\frac{19}{20}$, and $88\frac{8}{9}$ to improper fractions.

9. What prime numbers multiplied together will give 1072 and 1269?

10. Reduce $\frac{6}{7}$, $\frac{11}{28}$, and $\frac{19}{35}$ to fractions having the least common denominator.

11. Change $\frac{5}{9}$, $\frac{7}{12}$, 5, $\frac{11}{36}$, and $\frac{17}{24}$ to fractions having the least common denominator.

12. How many square inches are there in a sheet of paper 2 ft. 8 in. square?

13. A merchant bought 585 barrels of flour and sold $\frac{7}{9}$ of it at $4.75 a barrel.

14. What is the average price of 25 cows, if 8 cost $50 a head and the others $75 a head?

LESSON 19. **1.** Learn 58 . . . 65.

2. Reduce $\frac{480}{560}$, $\frac{378}{594}$, and $\frac{693}{792}$ to their lowest terms.

3. $794 + \overline{22 + 38} \times 9 - (75 - 9 \times 8 + \overline{16 - 7} \times 12)$.

4. Reduce $\frac{489}{63}$, $\frac{813}{70}$, and $\frac{936}{58}$ to whole or mixed numbers.

5. Find the greatest common divisor of 3281 and 10778.

6. Find the least common multiple of 338, 364, and 448.

7. Add 26 gal. 1 pt. 3 gi., 18 gal. 3 qt. 1 pt., 1 pt. 2 gi., 3 qt. 3 gi., 27 gal. 1 pt., and 9 gal. 3 qt. 3 gi.

8. Find the smallest number that is exactly divisible by 163 and 502.

9. Reduce $\frac{5}{12}$, $\frac{10}{21}$, $3\frac{4}{7}$, 4, $\frac{17}{28}$, and $\frac{19}{42}$ to fractions having the least common denominator.

10. How much can a man earn in 56 days at the rate of $71.25 for 19 days?

11. Find the number of cubic inches in a block 2 ft. 8 in. long, one foot wide, and 9 in. thick.

12. If 6 pieces of cloth, each piece containing 62 yards, cost $744, what cost 48 yards? Solve by cancellation.

13. A man has 175 bushels of wheat in one bin, 268 bushels in a second bin, and in a third bin, 85 bushels less than in the other two. How many bushels has he in the three bins?

LESSON 20. **1.** Learn 66 . . . 70.

2. Change $\frac{2}{3}$, $\frac{10}{15}$, $\frac{24}{36}$, $\frac{5}{9}$, and $\frac{8}{18}$ to 27ths.

3. Reduce 7 gal. 3 qt. 1 pt. 2 gi. to gills.

4. *Reduce* $90\frac{17}{40}$, $38\frac{3}{8}$, and $8\frac{17}{43}$ to improper fractions.

5. Find the common prime factors of 1155 and 2205.

6. Find the greatest common divisor of 756 and 1575.

7. If the divisor is 246, the remainder 97, and the quotient 187, what is the dividend?

8. A man who had $85750 lost $\frac{2}{5}$ of it in speculation. How much had he left?

9. At 5 cents a square foot, what cost 85 pine boards, each 16 ft. long and one foot wide?

10. If the divisor is $69, the quotient 284, and the remainder $37.78, what is the dividend?

11. A man bought land for $15360 and sold it for $20160, thereby gaining $3.75 an acre. Find the cost per acre.

12. A merchant has three kinds of tea; 60 pounds of the first, 75 pounds of the second, and 100 pounds of the third. He wishes to put it up in as few equal packages as possible without mixing the different kinds. How many packages will he have?

LESSON 21. 1. Learn 71 . . . 85.

2. Find the prime factors of 864 and 15125.

3. From 112 bu. 2 qt. subtract 67 bu. 3 pk. 6 qt.

4. Reduce $\frac{384}{1152}$, $\frac{55}{605}$, and $\frac{302}{894}$, to their lowest terms.

5. Reduce $85\frac{5}{9}$, $600\frac{7}{11}$ and $78\frac{71}{89}$ to improper fractions.

6. Reduce $\frac{432}{19}$, $\frac{680}{25}$, and $\frac{750}{20}$ to whole or mixed numbers.

7. $\overline{842 - 78} \times 8 - 35 - (\overline{7 + 13} \times 6 + 7 \times \overline{15 - 4})$.

8. Change $\frac{2}{3}$, $\frac{5}{7}$, $3\frac{5}{6}$, $\frac{11}{21}$, and 5 to fractions having the least common denominator.

9. The sum of two numbers is 148325, and one of them is 58786. Find the other number.

10. How many cubic feet are there in a wall 65 ft. long, 9 ft. high, and one yard thick?

11. What is the shortest distance that three poles, 8, 9, and 12 ft. long respectively will exactly measure?

12. A farmer raised 178 bushels of potatoes one year, twice as many the next year, and the third year, twice as many as in the two preceding years.

13. A dealer sold 580 bushels of potatoes at 75 cents a bushel and wheat for 6 times as much less $284.25. How much did he receive for both?

LESSON 22. **1.** Learn 86 . . . 90.

2. What number is $\frac{5}{9}$ of 2997?

3. Reduce $\frac{2}{3}$, $\frac{10}{14}$, $\frac{8}{12}$, $\frac{3}{7}$, and $\frac{30}{35}$ to 21sts.

4. Find the G. C. D. of 320, 386, and 432.

5. Reduce $17\frac{8}{9}$, $400\frac{23}{30}$, and $7\frac{13}{15}$ to improper fractions.

6. Find the greatest common factor of 857 and 4242.

7. Find the greatest common divisor of 741 and 1938.

8. What number besides 89 will exactly divide 8633?

9 How much will four and one-half pounds of tea cost at 6 cents an ounce?

10. The difference between two numbers is 54879, and the larger number is 132354. Find the smaller number.

11. How many square feet are there in a floor 28 ft. long and 18 ft. 3 in. wide?

12. How many tons of hay, at $14 a ton, are worth as much as 16 cows at $35 apiece? Solve by cancellation.

13. Two men are 325 miles apart. If they travel toward each other, one five miles an hour and the other 6 miles an hour, how far apart will they be at the end of 24 hours?

LESSON 23. **1.** Learn 71 . . . 90.

2. Multiply 47 yd. 2 ft. 9 in. by 9.

3. Reduce $\frac{252}{782}$, $\frac{528}{984}$, and $\frac{750}{900}$ to their lowest terms.

4. Find the least common multiple of 368 and 151.

5. Reduce 393 liquid pints to higher denominations.

6. $686 - 8 \times (82 - 47) + (5 \times \overline{16 + 14} - \overline{48 - 18} \times 3)$.

7. Reduce $\frac{567}{30}$, $\frac{328}{13}$, and $\frac{587}{45}$ to whole or mixed numbers.

8. Find the least common multiple of 184, 552, and 780.

9. What are the common prime factors of 48, 72, and 112?

10. How many cubic feet of air are there in a room 14 ft. square and 9 ft. high?

11. Reduce $\frac{4}{5}$, $\frac{5}{6}$, $\frac{5}{8}$, 7, and $\frac{8}{9}$ to fractions having the least common denominator.

12. A man paid $1140 for sheep at $4.75 a head and sold them at $6.25 a head.

13. The product of two numbers is 7325, and one of them is 25. Find the other number.

14. What is the average price of ten horses, if 4 of them cost $160 apiece and the others $180 apiece?

LESSON 24. 1. Divide 79 gal. 3 qt. by 8.

2. Change $\frac{1}{2}$, $\frac{2}{3}$, $\frac{4}{5}$, and $\frac{6}{7}$ to 210ths.

3. How many rods are there in 24 miles?

4. What number besides 71 exactly divides 4331?

5. Reduce $18\frac{5}{9}$, $70\frac{3}{50}$, and $14\frac{6}{11}$ to improper fractions.

6. A man's salary is $1400, and he spends $\frac{5}{8}$ of it. How much does he save?

7. Find the number of square yards in a floor 8 yards long and 18 feet wide.

8. If the dividend is $4500, the quotient $95, and the remainder $35, what is the divisor?

9. A farmer buys 6 pieces of muslin, each piece containing 45 yards, at 11 cents a yard, and pays for it in eggs

at 22 cents a dozen. Solve by cancellation and indicate what the answer represents.

10. A man bought 18 acres of land at $90 an acre and 27 acres at $135 an acre. He sold it all at $160 an acre. Find the sum received for it and the gain per acre.

11. Three men having $1260, $2268, and $2772 respectively, agree to buy land at the highest price per acre that will allow each man to invest all his money. How many acres can each man buy?

LESSON 25. **1.** Learn 47 . . . 57.

2. Reduce $\frac{475}{525}$, $\frac{126}{162}$, and $\frac{435}{957}$ to their lowest terms.

3. Reduce $\frac{738}{26}$, $\frac{843}{30}$, and $\frac{965}{86}$ to whole or mixed numbers.

4. Find the greatest common divisor of 10353 and 14877.

5. What prime numbers multiplied together will give 693 and 2336?

6. Reduce $68\frac{7}{9}$, $40\frac{7}{10}$, $60\frac{9}{20}$, $96\frac{11}{16}$, and $456\frac{7}{8}$ to improper fractions.

7. Change $\frac{11}{15}$, $\frac{7}{18}$, $1\frac{2}{21}$, and $\frac{11}{27}$ to fractions having the least common denominator.

8. Add 24 yd. 8 in., 16 yd. 2 ft., 2 ft. 9 in., 18 yd. 1 ft. 8 in., 1 ft. 9 in., and 14 yd. 2 ft.

9. Find the number of cubic inches in a stick of timber 8 feet long and one foot square at the ends.

10. What is the length of the shortest piece of wire that can be cut into pieces 16, 18, or 22 feet long?

11. A man bought wool for $2340 and sold it for $2790, thereby gaining 5 cents a pound. Find the cost per pound.

12. If 36 yards of silk cost $66.60, how many yards can *be bought for $96.20?*

LESSON 26.

1. Learn 58 . . . 65.

2. Reduce $\frac{24}{28}$, $\frac{18}{45}$, and $\frac{2}{3}$ to 105ths.

3. Find the G. C. D. of 4718, 6951, and 8876.

4. How many cubic inches are there in 64 gallons?

5. Reduce $90\frac{8}{9}$, $48\frac{6}{13}$, and $85\frac{13}{40}$ to improper fractions.

6. Find the greatest common divisor of 839 and 2768.

7. Find the greatest common factor of 147731 and 49373.

8. A floor is 27 feet long and 19 feet 4 inches wide. How many square yards does it contain?

9. The difference between two numbers is 24763, and the smaller number is 58375. Find the larger number.

10. A man bought 168 sheep at $5.50 a head. He sold $\frac{3}{7}$ of them at $6 a head and the remainder at $7 a head.

11. If 11 men earn $385 in a week, how much will 15 men earn in the same time? Solve by cancellation.

12. A man bought 12400 bushels of potatoes at 45 cents a bushel. For how much must he sell them per bushel to gain $2480?

13. A man made a profit of $1400 on apples, which he sold for $6300. For how much must he have sold them per barrel to gain $.75 a barrel, if there were 2800 barrels?

LESSON 27.

1. Learn 66 . . . 70.

2. From 34 gal. 3 qt. subtract 19 gal. 1 pt.

3. Reduce $\frac{305}{810}$, $\frac{280}{308}$, and $\frac{480}{630}$ to their lowest terms.

4. Find the common prime factors of 693 and 1323.

5. $746 + \overline{46 - 28} \times 7 + \overline{7 \times 14} \div 2 - 54 \times 8$.

6. Reduce $\frac{487}{38}$, $\frac{936}{85}$, and $\frac{809}{70}$ to whole or mixed numbers.

7. How many square yards are there in 635 square feet?

8. What is the smallest number that is exactly divisible by 84, 336, and 472?

9. Reduce $\frac{5}{6}$, $\frac{6}{7}$, $\frac{7}{8}$, $\frac{8}{9}$, and 3 to fractions having the least common denominator.

10. The product of two numbers is 100089, and the multiplier is 27. Find the multiplicand.

11. How many 2-inch cubes are there in a block of granite 3 ft. 6 in. long, 2 ft. 6 in. wide, and 18 in. thick?

12. If a man buys 139 sheep for $590.75, how many more can he buy for $204, at the same rate?

13. At $1.85 a rod, find the cost of fencing a field, two sides of which are each 68 rods, one side 54 rods, and the remaining side 48 rods.

LESSON 28. **1.** Learn 71 . . . 85.

2. Find $\frac{3}{5}$ of $71\frac{1}{4}$ pounds. **3.** 7742019 ÷ 79.

4. Reduce 24 acres to square rods.

5. Change $\frac{12}{28}$, $\frac{40}{56}$, and $\frac{56}{88}$ to seventy-sevenths.

6. Reduce $123\frac{4}{7}$, $60\frac{7}{20}$, and $73\frac{4}{9}$ to improper fractions.

7. Of what number is 179 both divisor and quotient?

8. If the divisor is $27, the quotient 188, and the remainder $19, what is the dividend?

9. How many 3-inch squares are there in a piece of paper 3 yd. long and 4 ft. wide?

10. If $7.65 be divided equally among 9 boys, how much will 7 of them receive?

11. A man bought 38760 pounds of wool at 24 cents a pound. He lost 4875 pounds by fire and sold the remainder at 32 cents a pound.

12. A man has four lots, which are 120, 420, 600, and 900 feet wide respectively. He wishes to divide them into as few lots of equal width as possible. How wide can he *make the lots, and* how many lots can he make?

LESSON 29. 1. Learn 86 . . . 90.

2. Multiply 26 bu. 3 pk. 6 qt. by 9.

3. Reduce $\frac{276}{300}$, $\frac{648}{810}$, and $\frac{308}{315}$ to their lowest terms.

4. $793 - \overline{12 \times 35} \div 7 - \overline{96 - (12 - 9) \times 15 + 48 \times 8}$.

5. How many cubic inches are there in a 15-inch cube?

6. Reduce $\frac{583}{45}$, $\frac{682}{50}$, and $\frac{859}{78}$ to whole or mixed numbers.

7. What prime numbers multiplied together will give 459 and 2375?

8. Change $\frac{1}{2}$, $\frac{2}{3}$, $3\frac{1}{4}$, $\frac{3}{5}$, and 7 to fractions having the least common denominator.

9. Bought a house for $2850 and a farm for $7285. How much will I gain or lose by selling both for $14500?

10. What is the average price of five horses, costing $125, $140, $150, $185, and $275 respectively?

11. There are three wheels, which revolve in 25, 30, and 50 seconds respectively. What is the least time in which all will make an exact number of revolutions?

12. A man sold a house for $8750 and gained $1550. How much would he have received for it, if he had sold it at a loss of $750?

LESSON 30. 1. Divide 71 yd. 9 in. by 9.

2. Reduce $\frac{20}{24}$, $\frac{28}{36}$, and $\frac{35}{63}$ to 54ths.

3. Reduce 9 yd. 1 ft. 8 in. to inches.

4. Find the G. C. D. of 292, 1095, and 1022.

5. Reduce $40\frac{7}{30}$, $84\frac{2}{3}$, and $75\frac{8}{11}$ to improper fractions.

6. Find the greatest common factor of 8476 and 2041.

7. Find the greatest common divisor of 1312 and 1197.

8. What number besides 149 will exactly divide 11771?

9. How many square inches are there in a piece of paper 6 yd. long and 2 ft. 6 in. wide?

10. The smaller of two numbers is contained 18 times in 1350, and the greater number is 36 times the smaller. Find the sum of the numbers.

11. A man bought 720 barrels of flour at $4.65 a barrel. He sold $\frac{3}{4}$ of it at $5.25 a barrel and the remainder at $5.75 a barrel.

12. A miller bought 15 loads of wheat, each load containing 26 bags of 2 bushels each, at $2 a bushel, and paid for it in flour at $6 a barrel. Solve by cancellation, and indicate what the answer represents.

LESSON 31.

1. What number is $\frac{5}{9}$ of 7020?

2. Reduce $\frac{126}{324}$, $\frac{384}{416}$, and $\frac{209}{253}$ to their lowest terms.

3. Find the least common multiple of 269 and 486.

4. Reduce 429 dry quarts to higher denominations.

5. Find the common prime factors of 2310 and 2541.

6. Find the least common multiple of 48, 484, and 1146.

7. Reduce $\frac{516}{19}$, $\frac{374}{20}$, and $\frac{1216}{95}$ to whole or mixed numbers.

8. $726 + 4 \times (84 + 56) - 5 \times (75 + 6 \times \overline{14 - 6})$.

9. Reduce $\frac{5}{7}$, $2\frac{5}{8}$, $\frac{7}{12}$, and 4 to fractions having the least common denominator.

10. Add 24 bu. 6 qt., 3 pk. 7 qt., 19 bu. 3 pk. 5 qt., 2 pk. 7 qt., and 9 bu. 2 pk. 6 qt.

11. How much less than $10000 will a farm of 145 acres cost at $60 an acre?

12. The product of three numbers is 3780, and two of them are 14 and 15. Find the other number.

13. Find the number of cubic feet of water in a cistern 24 ft. long and 16 ft. wide, if the water is 12 ft. deep.

14. Two men are 98 miles apart. If they travel away from each other, one 45 miles a day and the other 36 miles a day, how far apart will they be at the end of two days?

LESSON 32. 1. Find $\frac{29}{48}$ of $900.

2. Change $\frac{15}{27}$, $\frac{84}{120}$, and $\frac{42}{54}$ to 90ths.

3. Reduce $\frac{222}{657}$, $\frac{324}{486}$, and $\frac{525}{665}$ to their lowest terms.

4. Find the highest common factor of 468 and 1184.

5. How many sheets of paper are there in 38 quires?

6. Reduce $165\frac{5}{7}$, $120\frac{7}{9}$, and $14\frac{7}{20}$ to improper fractions.

7. If the quotient is 348, the remainder 186, and the divisor 276, what is the dividend?

8. If 27 acres of land cost $258, how much will 90 acres cost at the same rate? Solve by cancellation.

9. A man invested $22500, paying $\frac{5}{9}$ of it for a house and the remainder for a farm.

10. If the dividend is $5750, the quotient $67, and the remainder $55, what is the divisor?

11. What is the difference between two surfaces, one 68 feet square and the other containing 1672 square feet?

12. A man bought 1465 barrels of flour at $4.75 a barrel. He sold part of it at the same price, receiving $4009 for it. How many barrels had he left?

13. What is the highest price per acre that can be paid for land by three men, having $560, $240, and $1000 respectively, so that each may invest all his money?

LESSON 33. 1. From 122 yd. subtract 58 yd. 9 in.

2. How many multiples has any number?

3. Find the prime factors of 736 and 891.

4. Reduce $\frac{365}{511}$, $\frac{144}{960}$, and $\frac{315}{745}$ to their lowest terms.

5. $1648 + \overline{42 \times 28} \div 7 - (\overline{45 + 18} \times 7 - 49) \times 4$.

6. Reduce $\frac{418}{13}$, $\frac{926}{80}$, and $\frac{438}{65}$ to whole or mixed numbers.

7. The difference between two numbers is 72468, and the subtrahend is 41379. Find the minuend.

8. Change $\frac{4}{5}$, $2\frac{11}{20}$, $\frac{19}{24}$, and 3 to fractions having the least common denominator.

9. How many cubic inches are there in a cube of marble 38 inches on each edge?

10. A and B are 65 miles apart. If they travel away from each other, A 4 miles a day and B 5 miles a day, how far apart will they be at the end of 26 days?

11. A merchant wishes to buy hats at $3, $4, $5, and $6 apiece and to expend the same sum for each kind. What is the least amount that he can invest, and how many hats can he buy?

LESSON 34.

1. Learn 1 . . . 12.

2. What number is $\frac{5}{8}$ of 6152?

3. 63223 ÷ 79.

4. Reduce $\frac{27}{39}$ and $\frac{63}{91}$ to 78ths.

5. 741048 ÷ 39.

6. How many feet are there in 54 rods?

7. Reduce $83\frac{5}{8}$, $70\frac{5}{40}$, and $86\frac{4}{9}$ to improper fractions.

8. Find the greatest common factor of 1155 and 1029.

9. Find the greatest common divisor of 3321 and 2336.

10. The product of three numbers is 28512, and two of them are 24 and 36. Find the other number.

11. What is the area of a piece of ground 129 yards long and one-third as many yards wide?

12. A man bought land for $2560 and sold it for $4080, thereby gaining $4.75 an acre. Find the cost per acre.

13. Bought flour at $4.25 a barrel, paying $4080 for it, and sold it at $5.15 a barrel. How much did I gain?

14. A lady bought 35 yards of silk at 65 cents a yard but exchanged it for other silk worth 91 cents a yard. Solve by cancellation and indicate what the answer represents.

LESSON 35. 1. Learn 13 . . . 22.

2. Multiply 29 bu. 7 qt. by 9. 3. 623050 ÷ 89.

4. Find the least common multiple of 233 and 659.

5. Reduce $\frac{154}{220}$, $\frac{110}{121}$, and $\frac{492}{744}$ to their lowest terms.

6. Find the common prime factors of 1072 and 8019.

7. $(785 + 378) \times 8 - (\overline{82 + 32} \times 7 - 168 - 136) \times 7$.

8. What number besides 239 will exactly divide 67637?

9. How many cubic inches are there in a 13-inch cube?

10. Reduce $\frac{619}{24}$, $\frac{538}{40}$, and $\frac{1468}{63}$ to whole or mixed numbers.

11. Find the least common multiple of 352, 880, and 9680.

12. Reduce 5, $\frac{7}{12}$, $\frac{9}{16}$, $4\frac{3}{8}$, and $\frac{25}{36}$ to fractions having the least common denominator.

13. How much will 475 barrels of flour cost at the rate of $137.75 for 29 barrels?

14. What is the average price of 48 acres of land, if 22 acres of it cost $96 an acre and the remainder $144 an acre?

15. A man sold property for $12750 and lost $4250. How much would he have gained or lost, if he had sold it for $15750?

LESSON 36. 1. Learn 23 . . . 26.

2. Divide 63 gal. by 8. 3. 784070 ÷ 98.

4. Change $\frac{15}{51}$ and $\frac{63}{119}$ to eighty-fifths.

5. Reduce $700\frac{13}{65}$ and $432\frac{7}{9}$ to improper fractions.

6. How many inches are there in 12 rd. 4 yd. 7 in.?

7. A man earns $26.25 a week, and his son earns $\frac{2}{7}$ as much. How much do both earn?

8. The difference between two numbers is 86537, and the minuend is 225374. Find the subtrahend.

9. If the divisor is $58, the quotient 276, and the remainder $38, what is the dividend?

10. How many square feet are there in 58 boards, if each one is 18 ft. long and 18 in. wide?

11. How many overcoats, each containing 4 yards, can be made from 5 bales of cloth, 12 pieces in each bale, 42 yards in each piece? Solve by cancellation.

12. A dealer sold 438 tons of coal at $4.75 a ton and a number of tons of another kind at $5.20 a ton. He received $4264.50 for it all. How many tons did he sell?

13. Two farms, containing each an exact number of acres, were purchased for $21021 and $4165 respectively. What is the highest uniform price per acre that could have been paid for both farms? How many acres were bought?

LESSON 37. 1. Learn 27 . . . 32.

2. Reduce $\frac{744}{906}$, $\frac{505}{707}$, and $\frac{420}{864}$ to their lowest terms.

3. $4785 - (54 \times 16) \div 9 - (45 + \overline{7 + 8} \times 8) \times 9$.

4. Reduce $\frac{416}{19}$, $\frac{328}{29}$, and $\frac{637}{60}$ to whole or mixed numbers.

5. Change 4, $\frac{7}{9}$, $\frac{5}{27}$, and $1\frac{5}{18}$ to fractions having the least common denominator.

6. Add 18 gal. 3 qt. 1 pt., 24 gal. 1 pt. 3 gi., 9 gal. 2 qt. 2 gi., 8 gal. 1 pt. 3 gi., and 7 gal. 2 qt. 1 pt.

7. What prime numbers multiplied together will give 448 and 2133?

8. The product of three numbers is 33120, and two of them are 23 and 45. Find the other number.

9. Find the number of cubic inches in a stone 4 ft. long, 3 ft. wide, and 4 in. thick.

10. How many bushels of wheat, at $.85 a bushel, are worth as much as 450 barrels of flour at $5.10 a barrel?

11. Find the smallest sum that can be expended in the *purchase of* cows at $24, $27, $32, $36, or $56 apiece.

12. A man has 165 acres in one farm, 245 acres in another, and in a third 95 acres less than in both the others. How many acres has he in the three farms?

LESSON 38.

1. Learn 33 . . . 40.

2. Reduce 44 rods to feet.

3. 686085 ÷ 98.

4. Reduce $\frac{2}{9}$, $\frac{15}{27}$, $\frac{14}{18}$, and $\frac{35}{55}$ to 99ths.

5. Reduce $460\frac{13}{30}$ and $78\frac{4}{9}$ to improper fractions.

6. Find in two ways the G. C. D. of 2375 and 1197.

7. Find the greatest common factor of 891 and 1072.

8. What number besides 491 will exactly divide 35843?

9. Of what number is 368 both the divisor and quotient?

10. A man bought 640 acres of land at $7 an acre. He sold $\frac{3}{8}$ of it at $9 an acre and the remainder at $12 an acre.

11. If 35 rods of fence cost $135, how much will 63 rods cost at the same rate? Solve by cancellation.

12. How many square feet are there in a blackboard nine yards long and four feet wide?

13. A man has 364 sheep in four fields. In the first he has 85, in the second 79, and in the third the same number as in the fourth. How many are there in the third field?

LESSON 39.

1. Learn 41 . . . 46.

2. Reduce 435 gills to higher denominations.

3. Find the L. C. M. of 30, 32, 40, 50, and 75.

4. From 122 bu. 3 pk. subtract 67 bu. 3 pk. 4 qt.

5. Find the least common multiple of 239 and 587.

6. Reduce $\frac{882}{1512}$, $\frac{630}{882}$, and $\frac{216}{648}$ to their lowest terms.

7. Find the common prime factors of 1908 and 1980.

8. $958 + (144 \div 12) \times 9 - (\overline{18 - 3} \times 6 + 64 - \overline{53 + 48})$.

9. Reduce $\frac{713}{18}$, $\frac{1312}{90}$, and $\frac{842}{29}$ to whole or mixed numbers.

10. Reduce $\frac{7}{8}$, $1\frac{3}{16}$, $\frac{11}{24}$, $\frac{21}{32}$, and 2 to fractions having the least common denominator.

11. A grocer sold tea and coffee for $186.48 and flour for 7 times as much less $124.32. How much did he receive for all?

12. How many cubic inches are there in a block 4 yards long and 8 inches square at the ends?

13. A has $386, B has twice as much less $96.65, and C has $85 more than three times as much as B. How much have all?

LESSON 40.

1. Find $\frac{2}{3}$ of 29 bu. 1 pk. 4 qt.

2. Change $\frac{3}{7}$, $\frac{20}{28}$, $\frac{6}{7}$, and $\frac{36}{63}$ to forty-ninths.

3. How many cubic feet are there in 46 cords?

4. Reduce $800\frac{23}{24}$ and $216\frac{7}{8}$ to improper fractions.

5. Find the greatest common factor of 216, 360, and 432.

6. The product of three numbers is 44352, and two of them are 42 and 16. Find the other number.

7. If 15 books cost $39, how much will 55 books cost at the same price? Solve by cancellation.

8. If the dividend is $22478, the quotient 95, and the remainder $58, what is the divisor?

9. How many square yards are there in a pavement 264 feet long and 4 feet wide?

10. Two men start from two cities 348 miles apart and travel toward each other, one 16 miles a day and the other 18 miles a day. How far apart will they be at the end of 8 days?

11. A farmer has 260 bushels of rye, 384 bushels of oats, and 416 bushels of wheat. If he sends the grain to market in bags of equal size, what is the least number of bags that he can use without mixing the grain? How many bags will he have of each kind?

LESSON 41. 1. Multiply 18 yd. 2 ft. 9 in. by 8.

2. Find the prime factors of 544 and 1323.

3. How many square yards are there in 875 sq. ft.?

4. Reduce $\frac{344}{2268}$, $\frac{1242}{2323}$, and $\frac{2268}{3444}$ to their lowest terms.

5. $(1240 - 465) \times 9 + 187 - (\overline{86 + 14} \times 4 - 24) \times 9$.

6. Reduce $\frac{926}{17}$, $\frac{428}{35}$, and $\frac{940}{30}$ to whole or mixed numbers.

7. Change $2\frac{3}{4}$, $\frac{7}{8}$, $\frac{9}{16}$, and $\frac{5}{12}$ to fractions having the least common denominator.

8. If the divisor is 286, the remainder 174, and the quotient 98, what is the dividend?

9. A farmer sold five cows for $35, $50, $65, $85, and $115 respectively. Find the average price.

10. How many cubic feet of air are there in a room 45 ft. long, 34 ft. wide, and 18 ft. high?

11. Six men agree to expend the same amount in the purchase of land. The first pays $25 an acre; the second, $27; the third, $40; the fourth, $75; the fifth, $80; and the sixth, $120. Find the least number of acres that all can purchase.

LESSON 42. 1. Find $\frac{29}{64}$ of $1904.

2. Reduce $\frac{3}{5}$, $\frac{28}{35}$, $\frac{5}{9}$, and $\frac{56}{63}$ to 45ths.

3. Change 27 cubic feet to cubic inches.

4. Find the L. C. M. of 88, 97, and 162.

5. Find the L. C. M. of 336, 240, and 1768.

6. Reduce $830\frac{7}{9}$ and $458\frac{4}{7}$ to improper fractions.

7. Divide $33 \times 35 \times 39 \times 25 \times 14$ by $15 \times 21 \times 65 \times 10$.

8. The difference between two numbers is 29875, and the minuend is 41231. Find the subtrahend.

9. There are 609 pupils in a school $\frac{4}{7}$ of whom are girls. How many boys are there?

10. How many tiles one foot square are required to pave a hall 25 feet long and 16 feet wide?

11. A park is 48 rods long and 32 rods wide. How many times must a man walk around it to travel 45 miles?

12. A speculator bought 24000 pounds of wool at 24 cents a pound. He sold one-sixth of it at 28 cents a pound, one-half of it at 29 cents a pound, and the remainder at 26 cents a pound.

13. A man bought sheep at $6.25 a head, paying $550 for them. He sold part of them at the same price, receiving $300 for them. If he sold the remainder at $8.75 a head, how much did he receive for them?

LESSON 43. **1.** Find the L. C. M. of 263 and 649.

2. Find the L. C. M. of 27, 30, 35, 42, and 70.

3. Find the common prime factors of 1375 and 3321.

4. $468 + \overline{42 \times 15} \div 7 - (89 - 7 \times 7) \times 6 + 8 \times 97.$

5. Reduce $\frac{924}{1232}$, $\frac{928}{1320}$, and $\frac{324}{2184}$ to their lowest terms.

6. Reduce $\frac{845}{19}$, $\frac{1678}{90}$, and $\frac{923}{49}$ to whole or mixed numbers.

7. Add 18 yd. 2 ft., 19 yd. 8 in., 26 yd. 2 ft. 8 in., 9 yd. 11 in., 7 yd. 6 in., and 28 yd. 2 ft. 7 in.

8. Reduce $\frac{9}{10}$, $\frac{11}{15}$, $\frac{9}{20}$, and $\frac{13}{30}$ to fractions having the least common denominator.

9. The product of three numbers is 115200, and two of them are 40 and 48. Find the other number.

10. How many 2-inch cubes are there in a block of marble 2 ft. long, 18 in. wide, and 12 in. thick?

11. If a merchant buys 189 barrels of flour for $897.75, how many barrels more can he buy for $418 at the same price?

12. Two men are 248 miles apart. If they travel toward each other, one 9 miles a day and the other 8 miles a day, *how far* apart will they be at the end of 12 days?

LESSON 44. 1. Find $\frac{5}{8}$ of $350.

2. Change $\frac{4}{7}$, $\frac{24}{28}$, $\frac{2}{9}$, and $\frac{56}{72}$ to sixty-thirds.

3. How many dozen are there in 36 score?

4. Reduce $238\frac{13}{30}$ and $70\frac{13}{20}$ to improper fractions.

5. What number besides 185 will exactly divide 81400?

6. How many square feet are there in a surface 56 feet long and 28 feet wide?

7. If the divisor is 968, the quotient 467, and the remainder 724, what is the dividend?

8. If $85 be divided equally among 15 men, how much will 12 of them receive? Solve by cancellation.

9. A lady spent $\frac{5}{7}$ of $19.25 for a cloak and the remainder of it for a pair of shoes. Find the cost of each.

10. A merchant bought flour for $4976. He sold it for $5909 and gained $.75 a barrel. How many barrels did he buy?

11. A man has 324 acres of land in one farm and 78 acres in another. He wishes to divide the two farms into as large equal fields as possible. How many fields can he make?

12. A speculator bought 48000 bushels of corn at 52 cents a bushel. For how much must he sell it per bushel to gain $2880?

LESSON 45. 1. Learn 47 . . . 57.

2. Reduce 565 dry quarts to higher denominations.

3. $1876 + (45 \times 16) \div 9 - 7 \times (128 - 12 \times 9) + 1365$.

4. Reduce $\frac{875}{1500}$, $\frac{924}{1092}$, and $\frac{480}{1248}$ to their lowest terms.

5. Reduce $\frac{1843}{19}$, $\frac{742}{24}$, and $\frac{724}{20}$ to whole or mixed numbers.

6. What prime numbers multiplied together will give 992 and 2619?

7. Change $\frac{5}{14}$, $2\frac{4}{21}$, and $\frac{11}{28}$ to fractions having the least common denominator.

8. From 42 sq. yd. 7 sq. ft. 78 sq. in. subtract 27 sq. yd. 8 sq. ft. 96 sq. in.

9. The difference between two numbers is 67958, and the subtrahend is 47653. Find the minuend.

10. If I buy 844 sheep at $4.25 a head, for how much must I sell them per head to gain $1055?

11. Bought potatoes for $2678 and wheat for 3 times as much less $184. How much will I gain or lose by selling both for $11288?

12. A can hoe a row of corn in a certain field in 30 minutes, B in 20 minutes, and C in 35 minutes. What is the least number of rows that each can hoe in order that all may finish together?

LESSON 46. 1. Learn 58 . . . 65.

2. Reduce $\frac{3}{8}$, $\frac{49}{56}$, $\frac{5}{11}$, and $\frac{63}{99}$ to 88ths.

3. Reduce 19 bu. 3 pk. 6 qt. to quarts.

4. Find the G. C. D. of 900, 1764, and 1908.

5. Reduce $400\frac{7}{20}$ and $582\frac{7}{9}$ to improper fractions.

6. Divide 21 × 54 × 39 × 77 by 33 × 18 × 49 × 13.

7. What number besides 593 will exactly divide 573431?

8. Find the greatest common factor of 693, 736, and 1197.

9. The product of three numbers is 83160, and two of them are 24 and 45. Find the other number.

10. A boy earned $18. He spent $\frac{5}{8}$ of it for a suit of clothes and the remainder for a hat and shoes.

11. A square piece of tin is 2 ft. 8 in. on each side. How many square inches does it contain?

12. A man bought 8 horses at $125 a head and 17 at $175 a head. He sold them all at $165 a head. How much did he gain or lose per head?

13. A merchant made a profit of $183 on 244 yards of silk, which he sold at $2.25 a yard. Find the cost per yard.

LESSON 47. **1.** Learn 66 . . . 70.

2. Multiply 28 bu. 3 pk. 7 qt. by 7.

3. Find the L. C. M. of 16, 28, 40, 48, and 64.

4. $584 + (39 \times 17) \div 13 - (\overline{14 + 26} \times 7 - 108) \div 4$.

5. Reduce $\frac{891}{1485}$, $\frac{777}{1998}$, and $\frac{1818}{2323}$ to their lowest terms.

6. What are the common prime factors of 2336 and 8019?

7. Reduce $\frac{896}{50}$, $\frac{2168}{123}$, and $\frac{755}{18}$ to whole or mixed numbers.

8. Reduce $4\frac{3}{5}$, $\frac{8}{15}$, $\frac{11}{21}$, and $\frac{17}{35}$ to fractions having the least common denominator.

9. If the quotient is 687, the remainder 94, and the divisor 362, what is the dividend?

10. Find the smallest number that is exactly divisible by 257 and 562.

11. How many pounds of wool, at 28 cents a pound, are worth as much as 75 yards of cloth at $1.40 a yard?

12. How many cubic inches are there in a piece of slate 4 ft. square and one inch thick?

13. A farmer wished to raise $198. He sold 36 barrels of apples at $2.50 a barrel, and enough potatoes at $.75 a bushel to make up the required sum. How many bushels of potatoes did he sell?

LESSON 48. **1.** Learn 71 . . . 85.

2. Change $\frac{5}{9}$, $\frac{28}{63}$, $\frac{5}{12}$, $\frac{132}{144}$, and $\frac{7}{12}$ to 108ths.

3. Divide 37 sq. yd. 3 sq. ft. 56 sq. in. by 5.

4. Reduce $436\frac{7}{8}$ and $400\frac{17}{60}$ to improper fractions.

5. How many cubic inches are there in 86 gallons?

6. The difference between two numbers is 74658, and the minuend is 132122. Find the subtrahend.

7. How many square yards are there in a piece of ground 48 yards long and 75 feet wide?

8. If the divisor is 88, the quotient $248, and the remainder $66, what is the dividend?

9. A dealer bought 8100 pounds of cheese at 8 cents a pound. He sold $\frac{5}{8}$ of it at 9 cents a pound and the remainder at $9\frac{1}{2}$ cents a pound.

10. How many acres of land, at $15 an acre, are worth as much as 55 acres at $36 an acre? Solve by cancellation.

11. A farmer sold 23 barrels of pears at $3.50 a barrel and 27 barrels at $5.50 a barrel. Find the average price.

12. A has $620, B $1116, and C $1488, with which they agree to buy horses at the highest price per head that will allow each man to invest all his money. How many horses can all purchase?

TO THE TEACHER. — Teach 91 . . . 96.

LESSON 49.

1. Learn 86 . . . 90.

2. Find the prime factors of 1029 and 1980.

3. Reduce $\frac{2388}{4704}$, $\frac{3584}{3808}$, and $\frac{5643}{5940}$ to their lowest terms.

4. $468 \times 6 - (\overline{42 - 20} \times 6 - 85 + 28 \times 5 \div 7) \times 5 + 189$.

5. Of what number is 476 both the divisor and quotient?

6. Reduce $\frac{2184}{70}$, $\frac{936}{18}$, and $\frac{723}{22}$ to whole or mixed numbers.

7. Change $2\frac{2}{3}$, $\frac{5}{6}$, 7, $\frac{7}{9}$, and $\frac{12}{21}$ to fractions having the least common denominator.

8. Add 9 bu. 3 pk. 1 pt., 8 bu. 6 qt. 1 pt., 18 bu. 3 pk. 7 qt., 2 pk. 5 qt., and 19 bu. 1 pk.

9. How many 3-inch cubes are there in a block 27 in. long, 12 in. wide, and 9 in. thick?

10. A farmer sold 128 sheep at $6.25 a head and a number of others at $6.50 a head. He received for all $1359. *How many* did he sell?

11. If a grocer buys tea at 56, 63, and 72 cents a pound and expends the same sum for each kind, what is the least sum he can expend, and how many pounds of each kind can he buy?

To THE TEACHER. — Teach 97 and 98.

LESSON 50. 1. Learn 47 . . . 90.

2. Find the least common multiple of 769 and 937.

3. Find the greatest common factor of 525 and 3375.

4. If the dividend is $5200, the quotient $89, and the remainder $38, what is the divisor?

5. The difference between two numbers is 7569483, and the subtrahend is 379468. Find the minuend.

6. A boy bought 40 quires of paper at $.15 a quire and sold it for one cent a sheet. How much did he gain?

7. If a grocer buys 28 barrels of flour for $135.80, how many barrels more will cost him $82.45?

8. If I buy 116 bushels of potatoes at $.85 a bushel and sell them at 30 cents a peck, how much will I gain?

9. Find the difference in the area of two lawns, one 68 ft. square and the other 58 ft. long and 39 ft. wide.

10. How many half-inch cubes are there in a block of wood one foot long and six inches square at the ends?

11. What is the average price of 25 yards of silk, if 17 yards of it cost $.75 a yard and the rest $1 a yard?

12. A boy bought three bushels of chestnuts at $3.25 a bushel and sold them at 15 cents a quart. How much did he gain or lose?

13. A speculator sold 68 head of cattle for $2618 and lost $289. At what price per head should he have sold them to gain $170?

To THE TEACHER. — Teach 91 . . . 98.

FIFTH GRADE — THIRD TERM.

LESSON 1.

1. Learn 91 . . . 96.

2. From $\frac{7}{8}$ take $\frac{5}{6}$. 3. $\frac{4}{15} - \frac{2}{9}$.

4. From $\frac{5}{7}$ take $\frac{3}{5}$. 5. $\frac{15}{16} - \frac{5}{6}$.

6. $\frac{3}{4} + \frac{5}{7} + \frac{1}{2} + \frac{11}{14}$. 7. $5\frac{2}{5} - 2\frac{2}{3}$.

8. Add $\frac{3}{4}$, $\frac{7}{8}$, and $\frac{5}{6}$. 9. $7\frac{3}{8} + 19\frac{3}{4}$.

10. Add $47\frac{1}{2}$ and $28\frac{2}{3}$. 11. $\frac{2}{3} + \frac{5}{9} + \frac{7}{15} + \frac{4}{5}$.

12. From $46\frac{3}{4}$ take $27\frac{2}{3}$. 13. Add $\frac{3}{4}$, $\frac{5}{9}$, and $\frac{7}{12}$.

14. $\frac{7}{12} - \frac{1}{3} + \frac{3}{4} - \frac{1}{2} + \frac{5}{6}$. 15. $7\frac{1}{2} + 9\frac{2}{3} + 8\frac{3}{4} + 16$.

16. A man paid $345 for a carriage and $130 more for a span of horses. Find the cost of both.

17. A dealer sold $8\frac{3}{4}$ tons of coal to one man and $5\frac{3}{8}$ tons to another. How much did he sell to both?

18. How many cubic inches are there in a stick of timber one yard long and one foot square at the ends?

19. If a ton of hay is bought for \$$12\frac{2}{5}$ and sold for \$$14\frac{3}{4}$, how much is gained?

LESSON 2.

1. Learn 91 . . . 98.

2. Multiply $\frac{4}{11}$ by 5. 3. $9 \times \frac{11}{18}$.

4. Multiply $\frac{11}{14}$ by 7. 5. $100 \times \frac{7}{25}$.

6. Add $26\frac{3}{4}$ and $247\frac{2}{3}$. 7. $\frac{5}{7} \times \frac{3}{5} \times \frac{2}{3}$.

8. Multiply $\frac{13}{18}$ by $\frac{24}{13}$. 9. $21\frac{2}{5} - 17\frac{3}{4}$.

10. $\frac{7}{16} - \frac{1}{4} + \frac{13}{32} - \frac{3}{8} + \frac{1}{2}$. 11. $35\frac{3}{5} + 19\frac{6}{7}$.

12. What cost $248\frac{1}{2}$ acres of land at $75 an acre?

13. A man bought tea for \$$16\frac{3}{4}$ and sold it for \$$26\frac{2}{5}$.

14. Find the cost of $16\frac{3}{8}$ cords of wood at \$$4\frac{1}{2}$ a cord.

15. How many square inches are there in a sheet of paper 2 ft. 5 in. square?

16. A man bought wheat for $39600 and sold it for $42750, thereby gaining 7 cents a bushel. What was the cost per bushel?

TO THE TEACHER. — **Teach 99 and 100.**

LESSON 3.

1. Learn 97 . . . 100.

2. Divide $9\frac{3}{8}$ by $3\frac{3}{4}$.

3. $\frac{14}{15} \div \frac{7}{5}$.

4. Divide $\frac{45}{73}$ by 15.

5. $\frac{15}{26} \times 3$.

6. Divide 132 by $\frac{11}{35}$.

7. $64 \div \frac{8}{42}$.

8. Divide $10\frac{1}{8}$ by $2\frac{1}{4}$.

9. $\frac{54}{47} \div 12$.

10. Multiply 12 by $\frac{25}{48}$.

11. $3\frac{3}{4} \div \frac{5}{16}$.

12. From $78\frac{5}{6}$ take $49\frac{3}{4}$.

13. $8\frac{2}{3} + 9\frac{4}{5}$.

14. Multiply $\frac{3}{4}$ of $\frac{5}{9}$ by $\frac{4}{5}$ of $\frac{2}{3}$.

15. Add $\frac{7}{9}$, $\frac{15}{21}$, $\frac{2}{3}$, and $\frac{6}{7}$.

16. Find the number of cubic feet of air in a room 13 ft. long, 9 ft. wide, and 8 ft. high.

17. A man paid $465 for a span of horses and $185 less for a carriage. Find the cost of both.

18. A man bought 12465 pounds of wool at 28 cents a pound. For how much must he sell it to gain $623.25?

19. A man sold land at $38 an acre, receiving $3648 for it. How much would he have received for it, if he had sold it at $56 an acre?

TO THE TEACHER. — **Teach 101 and 102.**

LESSON 4.

1. Learn 91 . . . 102.

2. $\frac{5}{6} + \frac{3}{5} + \frac{5}{12} + \frac{3}{4}$.

3. $\frac{13}{25} \div 5\frac{1}{5}$.

4. Divide $\frac{4}{15}$ by $1\frac{3}{5}$.

5. $32\frac{1}{3} - 16\frac{3}{4}$.

6. Simplify $\frac{\frac{7}{12}}{\frac{3}{4}}$, $\frac{2\frac{1}{3}}{\frac{5}{6}}$, and $\frac{\frac{3}{7}}{12}$.

7. $40\frac{3}{4} - 18\frac{1}{3}$.

8. $7\frac{5}{9} + 8\frac{3}{4} + 16\frac{5}{6}$.

9. Find the sum of $\frac{1}{2}$ and $\frac{1}{3}$ by inspection.

10. Find the sum of $\frac{1}{4}$ and $\frac{1}{5}$ by inspection.

11. Simplify $\frac{5}{6} + \frac{3}{4} - \frac{1}{2} + \frac{7}{8} - \frac{5}{12} + \frac{2}{3} - \frac{7}{24} + \frac{5}{8}$.

12. At $.12$\frac{1}{2}$ a pound, what cost 8$\frac{3}{4}$ pounds of pepper?

13. I paid 10\frac{1}{2}$ for 14 books. Find the price of each.

14. At $68 an acre, how many acres of land cost $4964?

15. Bought 465 sheep at $4.65 a head and sold them for $2875.

16. At 5 cents a square foot, what cost 125 pine boards, if they are 16 ft. long and 18 in. wide?

17. A man sold a mill for $16750 and lost $1850. How much would he have received for it, if he had sold it at a profit of $2500?

To the Teacher. — Teach 103. In such examples as the ninth and tenth, have pupils give the difference as well as the sum.

LESSON 5.

1. Learn 103.

2. From $\frac{9}{13}$ take $\frac{7}{17}$.

3. $\frac{13}{11} \times 17$.

4. Divide 58$\frac{1}{3}$ by 25.

5. $240 \div \frac{16}{3}$.

6. What part of $\frac{7}{8}$ is $\frac{3}{4}$?

7. $144 \times \frac{13}{16}$.

8. What part of 35 is 21?

9. $31\frac{2}{9} - 18\frac{2}{3}$.

10. Simplify $\frac{3\frac{1}{2}}{5\frac{1}{4}}$, $\frac{25}{16\frac{2}{3}}$, and $\frac{6\frac{2}{7}}{2\frac{3}{4}}$.

11. $\frac{3}{4}$ is what part of 6?

12. $\frac{5}{7}$ is what part of 6?

13. 2 gal. 2 qt. is what part of 4 gallons?

14. A merchant bought three pieces of silk, containing 16$\frac{1}{2}$, 14$\frac{2}{3}$, and 17$\frac{3}{4}$ yards respectively.

15. A man bought a piece of ground for $2575 and built a house on it costing 4 times as much as the lot.

16. Bought three pounds of tea at 65 cents a pound and *2 pounds at* $*1* a pound. Find the average price.

17. A man earned $875 and spent $500. What part of his money had he left?

18. How many cubic inches are there in a block of marble 2 ft. long, 16 in. wide, and 9 in. thick?

To the Teacher. — Teach 104.

LESSON 6.

1. Learn 101 . . . 104.
2. Simplify $\frac{6\frac{1}{4}}{16\frac{2}{3}}$ and $\frac{7\frac{5}{9}}{5\frac{2}{3}}$.
3. $8\frac{6}{7} + 9\frac{4}{5}$.
4. $8\frac{3}{5} + 6\frac{1}{2}$.
5. What part of 8 is $\frac{4}{5}$?
6. $8\frac{1}{2} - 5\frac{4}{5}$.
7. $3\frac{2}{3}$ is what part of $4\frac{2}{5}$?
8. $89 - 28\frac{2}{5}$.
9. 128 is $\frac{4}{5}$ of what number?
10. $41\frac{2}{3} - 24\frac{4}{5}$.
11. 581 is $\frac{7}{9}$ of what number?
12. $47\frac{5}{6} + 58\frac{2}{3}$.
13. $78\frac{4}{7}$ is $\frac{5}{7}$ of what number?
14. Find $\frac{4}{5}$ of 875.
15. Find the sum of $\frac{1}{3}$ and $\frac{1}{4}$ by inspection.

16. A man spends $750, which is $\frac{5}{6}$ of his salary. How much does he save?

17. If 420 barrels of flour cost $1785, what cost 285 barrels at the same price?

18. A man bought flour at 4\frac{3}{4}$ a barrel, paying 80\frac{3}{4}$ for it. How many barrels did he buy?

19. A man divided a sum of money equally among 18 men, giving each one $8.75. How much did he give to all?

LESSON 7.

1. Learn 91 . . . 96.
2. Divide $9\frac{1}{3}$ by $2\frac{1}{3}$.
3. $21 \div \frac{14}{19}$.
4. Add $9\frac{3}{4}$, $9\frac{7}{12}$, and $18\frac{5}{8}$.
5. $8\frac{7}{8} + 6\frac{7}{9}$.
6. $198 is $\frac{8}{9}$ of what sum?
7. $51\frac{1}{4} - 28\frac{7}{9}$.
8. Add $16\frac{3}{5}$, $18\frac{2}{3}$, and $28\frac{11}{15}$.
9. $\frac{6}{11}$ of what number is 342?
10. $\frac{12\frac{6}{7}}{\frac{2}{7} \times 5 \times \frac{3}{4}}$.

11. Find the difference between $\frac{4}{5}$ and $\frac{6}{7}$.

12. Simplify $8\frac{3}{4} - 3\frac{5}{6} + 9\frac{1}{2} - 2\frac{7}{8} + 9\frac{11}{12} + 10$.

13. A man sold fruit for \$256 and gained \$46.65.

14. At $\$\frac{3}{8}$ a yard, how many yards of cloth cost \$128?

15. At $\$2\frac{4}{5}$ a day, how much can a man earn in 6 weeks?

16. How many gallons does a tank hold that is 33 in. long, 28 in. wide, and 15 in. deep?

17. If a man can do a piece of work in 12 days, what part of it can he do in 6 days? In 4 days? In 1 day?

LESSON 8.

1. Learn 97 . . . 100.

2. Simplify $\dfrac{\frac{4}{5} \text{ of } \frac{1}{8} \text{ of } 4\frac{1}{4}}{6\frac{3}{8}}$.

3. $42\frac{7}{9} - 18\frac{1}{2}$.

4. $79\frac{3}{5} + 64\frac{2}{3}$.

5. 26 is what part of 39?

6. $52\frac{6}{7} + 36\frac{1}{2}$.

7. Multiply $\frac{6}{7}$ of 10 by $\frac{4}{5}$ of 7.

8. $70\frac{2}{7} - 28\frac{2}{3}$.

9. Simplify $\frac{9}{10} + \frac{7}{8} - \frac{1}{2} + \frac{17}{20} - \frac{1}{4} + \frac{4}{5}$.

10. Find the sum of $\frac{1}{2}$ and $\frac{1}{7}$ by inspection.

11. A farmer sold 234 bushels of potatoes at a uniform price, receiving \$175.50 for them.

12. Six men bought 1240 acres of land at \$16 an acre and sold it for \$34720. How much did each gain?

13. At $\$\frac{4}{5}$ a yard, how many yards of silk can be bought for \$144?

14. How many square yards of oilcloth are required to cover a floor seven yards long and 18 ft. wide?

15. If $\frac{3}{5}$ of a piece of land is worth \$3795, how much is it all worth at the same rate?

LESSON 9.

1. Learn 101 . . . 104.

2. Simplify $\dfrac{\frac{1}{3} + \frac{3}{4} + 2}{\frac{7}{12} + \frac{2}{3} + \frac{1}{6}}$.

3. $\frac{14}{23} \times 9$.

4. $18 \times \frac{19}{36}$.

5. Divide $\frac{8}{11}$ of $\frac{33}{40}$ by 35.
6. $9\frac{7}{8} + 8\frac{4}{5}$.
7. Divide $\frac{4}{7}$ of 16 by $\frac{2}{3}$ of $\frac{4}{7}$.
8. $32\frac{2}{3} - 8\frac{3}{4}$.
9. Add $\frac{7}{8}$, $\frac{3}{4}$, $7\frac{5}{6}$, $\frac{5}{12}$, $\frac{1}{2}$, and $\frac{2}{3}$.
10. $22\frac{3}{8} - 9\frac{4}{5}$.
11. $84\frac{8}{9}$ is $\frac{2}{3}$ of what number?
12. $81 - 27\frac{11}{15}$.

13. A merchant sold some goods for $586 and lost $89.76. How much would he have received for them, if he had gained $76.24?

14. A has $$64\frac{1}{2}$, which is $$37\frac{4}{5}$ more than B has. How much money have both?

15. A man owed $217 and paid $124 on the debt. What part of the debt did he then owe?

16. How many inch cubes can be put into a box 28 in. long, 17 in. wide, and 13 in. deep?

17. A dealer sold 385 tons of coal at $4.85 a ton, 280 tons at $5.25 a ton, and 245 tons at $5.65 a ton.

LESSON 10.

1. $\frac{4}{15}$ is what part of $2\frac{4}{5}$?
2. Add $\frac{4}{5}$, $\frac{13}{15}$, $9\frac{5}{6}$, $\frac{9}{10}$, and $8\frac{1}{2}$.
3. $69\frac{3}{4} - 58\frac{5}{6}$.
4. What part of 1 yd. 1 ft. is 8 in.?
5. $72\frac{1}{4} - 26\frac{5}{7}$.
6. Find the L. C. M. of 81, 63, and 135.
7. Find the sum of $\frac{1}{3}$ and $\frac{1}{5}$ by inspection.
8. What are the prime factors of 48 and 72?
9. At $$\frac{3}{8}$ a yard, what cost $12\frac{7}{8}$ yards of silk?
10. What cost 385 barrels of flour at $5.35 a barrel?
11. Find the least common multiple of 50, 70, and 95.
12. Multiply the sum of 264 and 387 by three times their difference.
13. A floor is 27 ft. long and 19 ft. 4 in. wide. How many square yards does it contain?

14. I paid $250 for a horse and had $\frac{3}{5}$ of my money left. How much money had I left?

15. A dealer bought butter for $1925 and sold it for $2187.50, thereby gaining 3 cents a pound. Find the cost per pound.

LESSON 11. **1.** Add $45\frac{3}{4}$, $28\frac{4}{5}$, and $16\frac{1}{2}$.

2. Divide 360 by $\frac{8}{45}$. **3.** $8\frac{7}{8} + 9\frac{6}{7}$.

4. Simplify $\dfrac{1\frac{1}{2} + 2\frac{1}{4} - \frac{5}{6}}{\frac{2}{3} - \frac{5}{12} + 4}$. **5.** $42\frac{1}{2} \div 10$.

6. $17\frac{1}{3} - 5\frac{3}{4}$.

7. $\frac{5}{9}$ of what number is 785? **8.** $28\frac{3}{4} + 27\frac{2}{3}$.

9. Find the difference between $\frac{9}{15}$ and $\frac{17}{20}$.

10. Find the G. C. D. of 30, 54, 66, and 78.

11. Find the greatest common factor of 187 and 418.

12. Find the number of cubic inches in a block one yard long, one foot wide, and 8 in. thick.

13. If a man can do a piece of work in 45 days, what part of it can he do in 27 days?

14. If I buy 38 sheep at 3\frac{3}{4}$ a head and 37 at $6 a head, what is the average price?

15. If 16 yards of silk cost $29.60, how many yards will cost $48.10 at the same price?

LESSON 12. **1.** Learn 47 . . . . 57.

2. What part of 4 is $\frac{8}{15}$? **3.** $1\frac{14}{19} \div \frac{35}{52}$.

4. 49 is what part of 56? **5.** $40 - 23\frac{3}{4}$.

6. Multiply $\frac{5}{9}$ of $5\frac{1}{7}$ by $\frac{3}{5}$ of $24\frac{1}{2}$. **7.** $7\frac{2}{3} \times 5\frac{1}{5} \div 37\frac{3}{8}$.

8. Find the prime factors of 189 and 225.

9. Find the sum of $\frac{1}{2}$ and $\frac{1}{5}$ by inspection.

10. Find the L. C. M. of 12, 24, 36, and 96.

11. *Simplify* $\frac{11}{18} + \frac{5}{6} - \frac{4}{9} + \frac{5}{12} - \frac{3}{4} + \frac{2}{3} - \frac{1}{2}$.

12. Find the smallest number that is exactly divisible by 32, 64, 80, and 112.

13. A has $507, which is 12 times as much as B has. How much have both?

14. Bought land for $6 an acre, paying $5160 for it, and sold it for $14 an acre.

15. A man sold a house for $4800 and lost $\frac{1}{4}$ as much as it cost. Find the cost.

16. How many 3-inch squares are there in a piece of paper four yards long and three feet wide?

LESSON 13.

1. Learn 58 . . . 65.

2. $5\frac{2}{5} \times 3\frac{1}{3} \div 3\frac{5}{8}$. **3.** $72\frac{4}{5} - 26\frac{1}{3}$.

4. Simplify $\dfrac{\frac{5}{8} \times \frac{3}{4}}{4\frac{3}{2} - 2\frac{1}{2}}$. **5.** $32\frac{1}{2} - 17\frac{6}{7}$.

6. $7\frac{1}{2} \times 1\frac{2}{3} \div 15\frac{5}{8}$.

7. Add $\frac{3}{4}$, $7\frac{1}{2}$, $\frac{19}{32}$, $4\frac{5}{8}$, and $\frac{15}{16}$. **8.** $\frac{15}{28}$ is $\frac{3}{7}$ of what number?

9. Find the greatest common divisor of 169 and 195.

10. How many cubic inches are there in a 14-inch cube?

11. Find the greatest common factor of 36, 60, 84, and 96.

12. At $\$\frac{3}{8}$ a yard, what part of a yard of ribbon can be bought for $\$\frac{3}{16}$?

13. What part of an acre is a piece of land five rods long and four rods wide?

14. Two men are 226 miles apart. If they travel toward each other, one 26 miles a day and the other 28 miles a day, how far apart will they be at the end of 4 days?

15. A grocer bought flour at $4.35 a barrel, paying $1148.40 for it, and sold it at $5.15 a barrel.

LESSON 14.

1. Learn 66 . . . 70.

2. From $\frac{29}{30}$ take $\frac{17}{25}$. **3.** $51 \times \frac{5}{17}$.

4. Multiply $\frac{19}{85}$ by 75. **5.** $7\frac{1}{2} \times 5\frac{2}{3} \div 2\frac{3}{8}$.

6. Find the prime factors of 280 and 693.

7. Find the sum of $\frac{1}{4}$ and $\frac{1}{7}$ by inspection.

8. What part of 20 gal. 1 qt. is 4 gal. 2 qt.?

9. A boy gave $\frac{6}{11}$ of his money for a watch, which cost $48. How much money had he left?

10. Find the number of square inches in a piece of paper 7 feet long and 8 inches wide.

11. Find the difference between the greatest common divisor of 66, 99, and 165 and their least common multiple.

12. How many half-inch cubes are there in a cube of wood two feet on each edge?

13. A man bought 840 barrels of flour at $4.60 a barrel. He sold part of it at the same price, receiving $2116 for it. How many barrels had he left?

LESSON 15.

1. Learn 71 . . . 85.

2. Add $64\frac{3}{7}$ and $59\frac{2}{3}$.

3. $75 \div \frac{5}{6}$.

4. Simplify $\dfrac{2\frac{1}{7} - 1\frac{1}{2}}{4\frac{1}{2} - 1\frac{5}{7}}$.

5. $18\frac{2}{3} - 9\frac{11}{15}$.

6. $5\frac{2}{5} \times 63 \div 1\frac{2}{3}$.

7. $28\frac{2}{3}$ is $\frac{8}{9}$ of what number?

8. $5\frac{2}{3} \times 3\frac{1}{5} + 8\frac{3}{4}$.

9. Find the difference between $\frac{17}{19}$ and $\frac{17}{18}$.

10. Find the prime factors of 272 and 1625.

11. Find the largest number that will exactly divide 14, 42, 63, and 91.

12. A farmer sold 35 bushels of clover-seed at a uniform price, receiving $227\frac{1}{2}$ for it.

13. How many 3-inch cubes are there in a block 2 ft. long, 9 in. wide, and 6 in. thick?

14. If A and B can do a piece of work in 117 days, what part of it can they do in 65 days?

15. A man sold 16 loads of potatoes, each load containing 45 bushels. If he has 245 bushels left, what is the value of *his whole crop* at 65 cents a bushel?

LESSON 16. 1. Learn 86 . . . 90.

2. $\frac{13}{15}$ is what part of $1\frac{4}{9}$? 3. $27\frac{3}{4} \div 6 + 1\frac{3}{8}$.

4. Multiply $116\frac{1}{7}$ by $5\frac{1}{3}$ times $\frac{3}{4}$ of 7.

5. Find the sum of $\frac{1}{5}$ and $\frac{1}{6}$ by inspection.

6. Simplify $\frac{5}{6} + \frac{7}{8} - \frac{2}{3} - \frac{1}{2} + \frac{3}{4} + \frac{17}{24} - \frac{7}{12} + \frac{9}{16}$.

7. At $3\frac{3}{4}$ dollars ($\$3\frac{3}{4}$) a head, how many sheep can be bought for $540?

8. Find the smallest number that is exactly divisible by 34, 51, 65, and 121.

9. What is the difference between two surfaces, one 58 ft. square and the other containing 1346 square feet?

10. A farmer has 78 sheep in one field, which is $\frac{2}{3}$ as many as he has in another field. How many sheep has he?

11. A man bought 575 barrels of apples at $1.85 a barrel. He lost 65 barrels and sold the remainder at $2.75 a barrel.

12. A speculator bought 36000 pounds of wool at 26 cents a pound. He sold part of it at the same price, receiving $3120 for it. If he sold the remainder at 32 cents a pound, how much did he gain?

LESSON 17. 1. Learn 91 . . . 98.

2. From 54 take $16\frac{3}{7}$. 3. $45\frac{3}{4} \div 8$.

4. Simplify $\frac{1\frac{5}{6} + 5\frac{1}{2}}{4\frac{1}{4} - 2\frac{2}{3}}$. 5. $4\frac{5}{7} \div 2\frac{3}{4}$.

6. $21\frac{3}{5} - 7\frac{9}{10}$.

7. $\frac{35}{48}$ is $\frac{7}{8}$ of what number? 8. $32\frac{4}{9} - 8\frac{11}{12}$.

9. Add $\frac{7}{12}$, $4\frac{2}{3}$, $\frac{3}{4}$, $8\frac{1}{2}$, $\frac{5}{6}$, $\frac{8}{9}$, and $\frac{5}{18}$.

10. Find the greatest common divisor of 433 and 977.

11. Divide $\frac{7}{8}$ of $\frac{4}{5}$ of $\frac{9}{14}$ of 8 times $\frac{5}{9}$ by $\frac{8}{11}$ of 9 times $\frac{11}{12}$.

12. Find the greatest common factor of 672, 352, and 992.

13. At $120 an acre, what part of an acre of land can be bought for $80?

14. How many 2-inch cubes are there in a block of granite 3 ft. long and 8 in. square at the ends?

15. One-third of one number is 368, and 4 times another number is 888. Find the sum of the two numbers.

16. A man sold a stock of goods for $7325 and lost $1864. How much would he have gained or lost, if he had sold them for $11658?

LESSON 18.

1. Learn 99 . . . 104.
2. Multiply 16 by $\frac{7}{51}$.
3. $\frac{11}{56} \times 8$.
4. What part of 12 is $\frac{9}{4}$?
5. $32\frac{1}{3} - 15\frac{4}{5}$.
6. Add $\frac{7}{8}$, $8\frac{7}{10}$, $\frac{17}{20}$, $6\frac{4}{5}$, and $\frac{3}{4}$.
7. $20\frac{1}{4} - 10\frac{5}{6}$.
8. Find the sum of $\frac{1}{2}$ and $\frac{1}{8}$ by inspection.
9. A farmer sold 875 bushels of wheat at $\$\frac{4}{5}$ a bushel.

10. What prime numbers multiplied together will give 441 and 900?

11. What is the area of a piece of ground 129 yards long and one-third as many yards wide?

12. What is the smallest sum that can be paid in 2, 3, 10, 25, or 50-cent coins?

13. If $27000 is $\frac{4}{5}$ of the value of a store, what is the full value of it?

14. What is the average price of 25 cows, if 18 of them cost $50 a head and the others $125 a head?

15. A man bought 45000 bushels of wheat at $.74 a bushel. He sold one-half of it at $.78 a bushel, one-third of it at $.80 a bushel, and the remainder at $.83 a bushel.

LESSON 19.

1. $47\frac{5}{8}$ is $\frac{3}{8}$ of what number?
2. $50\frac{3}{5} - 23\frac{5}{7}$.
3. $396 \div \frac{12}{17}$.
4. $\dfrac{1\frac{7}{8} + 2 - 1\frac{3}{4}}{4\frac{1}{2} + 3\frac{1}{4}}$.
5. $(5\frac{3}{5} \div 1\frac{3}{4}) \times 29$.
6. Divide $3\frac{21}{50}$ by 9.

7. Add $18\frac{7}{8}$, $42\frac{5}{6}$, and $28\frac{1}{2}$.   8. $15\frac{4}{5} - (3\frac{7}{8} + 7\frac{7}{10})$.

9. Find the difference between $\frac{19}{21}$ and $\frac{23}{35}$.

10. Find the G. C. D. of 462, 759, and 1155.

11. Find the number of cubic inches in a block 3 ft. long, one foot wide, and 9 in. thick.

12. A man raised 639 bushels of potatoes and sold 497 bushels. What part of his crop had he left?

13. A man has $874 in one bank, $1225 in another, and in a third, $276.75 less than in the other two. How much has he in the three banks?

14. A dealer sold 375 tons of coal at $4.65 a ton, 285 tons at $4.85 a ton, and the remainder of 1000 tons at $5.35 a ton. How much did he receive for all?

LESSON 20.   1. 68 is what part of 85?

2. Find the sum of $\frac{1}{3}$ and $\frac{1}{7}$ by inspection.

3. Simplify $\frac{7}{9} + \frac{11}{18} - \frac{5}{27} + \frac{5}{6} - \frac{1}{2} + \frac{37}{54} - \frac{2}{3}$.

4. What are the prime factors of 112 and 385?

5. At $\$\frac{7}{8}$ a bushel, what will $145\frac{1}{2}$ bushels of wheat cost?

6. A man sold 144 barrels of flour at a uniform price, receiving $540 for it.

7. A man spent $700 in a year and had $\frac{4}{9}$ of his salary left. How much was his salary?

8. How many square feet are there in 65 boards, if each one is 16 ft. long and 18 in. wide?

9. How many times is the greatest common divisor of 221 and 247 contained in their least common multiple?

10. A man bought land for $15360 and sold it for $20160, thereby gaining $\$3\frac{3}{4}$ an acre. Find the cost per acre.

11. If 8 pieces of silk, each piece containing 35 yards, cost $350, how much will 58 yards cost at the same price?

12. What is the average price of 25 pair of gloves, if 17 pair of them cost $1.75 a pair and the remainder $1 a pair?

LESSON 21.

1. $\frac{33}{65}$ is $\frac{11}{15}$ of what number?

2. $\dfrac{2\frac{1}{4} + 1\frac{1}{2} \div \frac{2}{3}}{8\frac{1}{2} - \frac{5}{6} \times \frac{3}{4}}$.

3. $(6\frac{3}{7} \times 1\frac{13}{15}) \div \frac{2}{3}$.

4. $(8\frac{5}{8} \div 18\frac{2}{5}) \div 9\frac{6}{11}$.

5. Add $8\frac{5}{6}$, $\frac{5}{12}$, $7\frac{11}{16}$, $\frac{5}{8}$, $4\frac{3}{4}$, and $9\frac{2}{3}$.

6. What number added to $47\frac{4}{5}$ will give $91\frac{1}{4}$?

7. At $\$\frac{3}{8}$ apiece, how many melons will cost $\$\frac{3}{4}$?

8. What is the largest number that will exactly divide 630, 1134, and 1386?

9. How many cubic feet are there in a wall 85 ft. long, 9 ft. high, and one yard thick?

10. If I can do a piece of work in $\frac{7}{8}$ of a day, what part of it can I do in $\frac{3}{4}$ of a day?

11. A man gave his older daughter $750, his younger daughter $175 less, and his son $650 more than he gave to both daughters. How much did he give to all?

12. A farmer raised 245 bushels of wheat one year, twice as many bushels the next year, and the third year, three times as many bushels as in the two preceding years. How many bushels did he raise in the three years?

LESSON 22.

1. Learn 47 . . . 57.

2. Multiply $\frac{19}{24}$ by 3.

3. $314 \times \frac{7}{25}$.

4. Find the sum of $\frac{1}{5}$ and $\frac{1}{7}$ by inspection.

5. Find the difference between $\frac{8}{17}$ and $\frac{11}{12}$.

6. What part of 2 bu. 1 pk. is 1 pk. 4 qt.?

7. Find the prime factors of 1197 and 2275.

8. How many square yards are there in a blackboard nine yards long and four feet wide?

9. I sold a piece of land for \$8400 and gained a sum equal to $\frac{3}{4}$ of the cost. Find the cost.

10. A father divided a sum of money equally among his six children, giving each one \$475.

11. What is the smallest sum of money that can be expended for sheep at \$8 a head, cows at \$28 a head, oxen at \$54, or horses at \$162 a head?

12. Two men are 226 miles apart. If they travel toward each other, one 6 miles an hour and the other 5 miles an hour, how far apart will they be at the end of 16 hours?

LESSON 23.

1. Learn 58 . . . 65.

2. $\dfrac{\frac{1}{12} + 1\frac{1}{3} + \frac{5}{6} - 2\frac{1}{2}}{2\frac{3}{4} + \frac{7}{8} - 1\frac{1}{8}}$.

3. $82\frac{3}{8} - 27\frac{23}{36}$.

4. $(10\frac{4}{5} \div 2\frac{4}{7}) \div 7\frac{7}{8}$.

5. $8\frac{1}{2} + 7\frac{2}{3} - 13\frac{3}{4} + 29\frac{1}{12}$.

6. $4\frac{5}{6} + 7\frac{8}{9} + 4\frac{5}{12} + 6$.

7. 533 is $\frac{13}{17}$ of what number?

8. Add $73\frac{3}{4}$, $16\frac{5}{7}$, $29\frac{1}{2}$, and $36\frac{9}{14}$.

9. Find the G. C. D. of 521 and 971.

10. Find the difference between $\frac{35}{42}$ and $\frac{17}{28}$.

11. Find the greatest common factor of 3768 and 3596.

12. A man sold corn at \$$\frac{5}{8}$ a bushel, receiving \$176 for it.

13. How many cubic feet of air are there in a room 14 feet square and 9 feet high?

14. A lady paid \$85 for a cloak and \$$27\frac{3}{4}$ less for a dress. How much did she pay for both?

15. A man bought sheep at \$$4\frac{3}{4}$ a head, paying \$1140 for them, and sold them at \$$6\frac{1}{4}$ a head.

16. A man owning $\frac{5}{7}$ of an acre of land sold $\frac{3}{7}$ of an acre. What part of his land did he sell?

LESSON 24.

1. Learn 66 . . . 70.

2. $\frac{16}{21}$ is what part of $\frac{48}{35}$?

3. $21 \div (\frac{4}{9} - \frac{1}{4})$.

4. Multiply $\frac{5}{8}$ of $\frac{3}{7}$ of 11 by $\frac{3}{11}$ of $\frac{8}{3}$ of $3\frac{1}{2}$.

5. Find the sum of $\frac{1}{6}$ and $\frac{1}{7}$ by inspection.

6. Find the prime factors of 585 and 1764.

7. $\frac{9}{10} + \frac{13}{15} - \frac{2}{3} - \frac{1}{2} + \frac{11}{12} - \frac{3}{4} + \frac{17}{20} - \frac{2}{5} + \frac{5}{6}$.

8. Find the least common multiple of 163 and 502.

9. Find the smallest number that is exactly divisible by 338, 364, and 448.

10. How many square yards are there in a pavement 262 feet long and four feet wide?

11. I paid $375 for a carriage, which was equal to $\frac{3}{5}$ of the sum paid for a span of horses.

12. A man earns 36\frac{3}{4}$ a week, which is five times as much as his son earns. How much do both earn?

13. Bought 22 acres of land at $90 an acre and 23 acres at $135 an acre. Sold it all at $160 an acre. How much did I gain per acre?

LESSON 25.

1. Learn 71 . . . 85.

2. $\dfrac{2\frac{1}{2} + \frac{2}{3} \div \frac{4}{5}}{3\frac{1}{6} - \frac{3}{4} \times 2\frac{1}{3}}$.

3. $75 \div (\frac{5}{6}$ of $\frac{6}{9})$.

4. $50 \div (\frac{7}{8}$ of $\frac{9}{14})$.

5. $\frac{26}{35}$ is $\frac{13}{21}$ of what nnmber?

6. $\frac{4}{7} + \frac{10}{21} + \frac{2}{3} + \frac{4}{5}$.

7. Cloth that cost 58\frac{2}{5}$ was sold for 49\frac{3}{4}$.

8. Find the greatest common divisor of 479 and 829.

9. Find the largest number that will exactly divide 1938 and 1666.

10. Divide $\frac{13}{15}$ of $\frac{9}{11}$ of $\frac{10}{13}$ of $2\frac{3}{4}$ times 12 by $3\frac{2}{3}$ times $1\frac{7}{11}$ times 3.

11. How many cubic inches are there in a stick of tim*ber one foot* square at the ends and 6 feet long?

12. From a flock of 185 sheep a man sold 74. What part of his flock was left?

13. A man lost $2275 on a farm, which he sold for $14525. How much would he have received for it, if he had gained $1275?

14. One-half of a certain number is greater than one-third of it by 689. Find the number.

LESSON 26.

1. Learn 86 . . . 90.

2. Multiply 105 by $\frac{15}{7}$.

3. $\frac{17}{39} \times 13$.

4. What part of $204 is $156?

5. $72\frac{1}{6} - 28\frac{7}{9}$.

6. Add $8\frac{3}{10}$, $\frac{3}{5}$, $\frac{4}{7}$, $\frac{9}{14}$, $7\frac{1}{2}$, and $8\frac{9}{35}$.

7. Find the sum of $\frac{1}{4}$ and $\frac{1}{5}$ by inspection.

8. Find the prime factors of 3915 and 1312.

9. What will 68 yards of silk cost at $$\frac{3}{4}$ a yard?

10. How many tiles 1 foot square will be required to pave a hall 38 feet long and 16 feet wide?

11. Eight men bought property for $240000 and sold it for $266000. How much did each gain?

12. What is the shortest distance that three tape measures will exactly measure, the measures being 8, 9, and 12 feet long respectively?

13. A man sold $\frac{1}{2}$ of his wheat to one man, $\frac{1}{3}$ to another, and had 168 bushels left. How many bushels did he raise?

14. Two men are 58 miles apart. If they travel away from each other, one 17 miles a day and the other 14 miles a day, how far apart will they be at the end of 6 days?

LESSON 27.

1. Learn 91 . . . 98.

2. $\dfrac{4\frac{1}{2} \div \frac{3}{4} + 1\frac{3}{8}}{1\frac{5}{8} \times 8\frac{8}{13} - 12\frac{1}{2}}$.

3. $2\frac{8}{45} \div 70$.

4. Divide 460 by $7\frac{1}{4}$.

5. $(13\frac{3}{5} \div 1\frac{6}{11}) \div 8\frac{3}{4}$. 6. $(8\frac{5}{8} + 7\frac{2}{3}) \times (\frac{4}{5} + \frac{9}{10})$.

7. Add $74\frac{4}{5}$, $28\frac{1}{2}$, $26\frac{7}{10}$, $34\frac{17}{20}$, and $38\frac{1}{2}$.

8. Find the difference between $\frac{47}{63}$ and $\frac{79}{84}$.

9. Find the G. C. D. of 1088, 867, and 714.

10. Find the greatest common factor of 945 and 702.

11. How many 2-inch cubes are there in a block of granite 4 ft. long, 3 ft. wide, and 2 ft. thick?

12. A man sold a house for $8425 and gained $575. How much would he have received for it, if he had sold it at a profit of $1400?

13. A man gave his son $450, which was $\frac{2}{44}$ of his money. How much money had he left?

14. If tea costs $\$\frac{4}{5}$ a pound, what part of a pound can be bought for $\$\frac{9}{20}$?

15. At $\$3\frac{1}{2}$ a rod, how much will it cost to fence a field two sides of which are each 74 rods, one side 68 rods, and the remaining side 54 rods?

LESSON 28. 1. Learn 99 . . . 104.

2. $\frac{4}{9}$ is what part of 44? 3. $100 \div (5\frac{1}{2} \times \frac{1}{8})$.

4. Find the sum of $\frac{1}{2}$ and $\frac{1}{3}$ by inspection.

5. Find the prime factors of 2205 and 3025.

6. $\frac{7}{8} + \frac{8}{9} - \frac{1}{2} - \frac{2}{3} + \frac{7}{12} + \frac{5}{6} - \frac{11}{18} + \frac{17}{36} - \frac{3}{4} + \frac{13}{24}$.

7. Multiply $5\frac{1}{4}$ times $\frac{5}{9}$ of 15 by $\frac{5}{7}$ of 3 times $\frac{1}{5}$ of 4.

8. How many square feet are there in a surface 24 feet long and 18 inches wide?

9. Find the difference between the greatest common divisor of 451 and 209 and their least common multiple.

10. At $\$4\frac{1}{2}$ a barrel, how many barrels of flour can be bought for $2160?

11. A man gave his daughter $4500, which was equal to $\frac{3}{7}$ of the sum he gave to his son. How much did he give *to both?*

12. A man bought 44380 pounds of wool at 26 cents a pound. He lost 4285 pounds by fire and sold the remainder at 32 cents a pound.

13. If eighteen yards of silk cost $33.30, how many yards can be bought for $96.20 at the same price?

LESSON 29.

1. Add $\frac{3}{8}$, $\frac{9}{14}$, $\frac{3}{7}$, $\frac{17}{28}$, and $\frac{3}{4}$.

2. $\dfrac{(2\frac{2}{3} + 3\frac{3}{4}) \div \frac{11}{12}}{\frac{10}{11} \times (3\frac{3}{5} - 2\frac{1}{2})}$.

3. $51 \div (\frac{4}{5} - \frac{3}{8})$.

4. $(24\frac{7}{8} - 8\frac{5}{6}) \times 9\frac{7}{12}$.

5. What number added to $27\frac{2}{7}$ will give 47?

6. How many cubic inches are there in a 16-inch cube?

7. A farmer sold $45\frac{1}{2}$ bushels of wheat for $\$36\frac{2}{5}$. What was the price per bushel?

8. What is the greatest length of boards that can be used in building two fences, one 218 and the other 288 rods long, without cutting any of the boards?

9. I bought $\frac{7}{12}$ of an acre of land and sold $\frac{5}{18}$ of an acre. What part of my land had I left?

10. What is the average price of five horses, costing $165, $175, $200, $225, and $275 respectively?

11. I lost $\frac{1}{3}$ of my money, gave $\frac{1}{4}$ of it for a house, and had $12000 left. Find the cost of the house.

12. A man made a profit of $700 on apples, which he sold for $3150. For how much must he have sold them per barrel to gain $.75 a barrel, if there were 1400 barrels?

LESSON 30.

1. What part of 75 in. is 2 ft.?

2. Multiply $\frac{15}{28}$ by 7.

3. $184 \times 7\frac{3}{4}$.

4. Find the sum of $\frac{1}{3}$ and $\frac{1}{4}$ by inspection.

5. What fraction must be added to $\frac{9}{22}$ to make $\frac{28}{33}$?

6. What prime numbers multiplied together will give 539 and 1155?

7. If each of nine men has $285\frac{3}{4}$ acres of land, how many acres have all?

8. A square piece of paper is 3 ft. 8 in. on each side. How many square inches does it contain?

9. If $\frac{4}{7}$ of a piece of silk is worth \$95, how much is the other part worth?

10. What is the length of the shortest piece of wire that can be cut into pieces 16, 18, or 22 ft. long?

11. The smaller of two numbers is contained 18 times in 1350, and the larger number is 44 times the smaller. Find the two numbers.

12. At \$2.65 a rod, how much will it cost to build a fence around a square field 24 rods on each side?

LESSON 31.

1. Add $64\frac{5}{8}$, $47\frac{4}{5}$, $17\frac{9}{15}$, and $36\frac{2}{3}$.

2. $\dfrac{7\frac{1}{4} \div (2\frac{1}{2} + 1\frac{1}{8})}{(3\frac{1}{5} + 3\frac{1}{2}) \times 1\frac{1}{9}}$.

3. $35 \div (\frac{5}{8} + \frac{1}{4})$.

4. $(9\frac{2}{7} \div \frac{4}{11}) \div \frac{7}{8}$.

5. Find the G. C. D. of 326 and 807.

6. Which is the greater, and how much, $\frac{11}{15}$ or $\frac{7}{12}$?

7. Find the greatest common factor of 144, 216, and 648.

8. A grocer sold 24 barrels of flour at a uniform price, receiving $\$110\frac{4}{5}$ for it.

9. John earns \$485 in a year, which is $\frac{5}{14}$ as much as his father earns. How much do both earn?

10. Find the number of cubic feet of water in a cistern 24 ft. long and 18 ft. wide, if the water is 12 ft. deep.

11. What part of a piece of work can a man do in 34 days, if he can do the whole of it in 85 days?

12. Two men are 78 miles apart. If they travel away from each other, one 42 miles a day and the other 38 miles *a day,* how far apart will they be at the end of two days?

LESSON 32.

1. $\frac{22}{9}$ is what part of $3\frac{2}{3}$?

2. Multiply $\frac{678}{920}$ by $\frac{7}{10}$ of $\frac{115}{339}$. 3. $50\frac{1}{3} - 19\frac{11}{13}$.

4. Find the sum of $\frac{1}{2}$ and $\frac{1}{7}$ by inspection.

5. Find the prime factors of 1593 and 3904.

6. Simplify $\frac{11}{15} + \frac{2}{3} - \frac{1}{2} + \frac{19}{30} - \frac{3}{5} + \frac{9}{10} - \frac{5}{6}$.

7. What is the smallest number that is exactly divisible by 84, 336, and 472?

8. At what price can a man buy 780 bushels of wheat for seven hundred forty-one dollars?

9. How many square yards are there in a piece of ground 56 yards long and 75 feet wide?

10. A farmer sold 48 sheep and had $\frac{9}{11}$ of his flock left. How many had he left?

11. A man bought 1275 barrels of flour at $4\frac{3}{4}$ a barrel. He sold part of it at the same price, receiving $4009 for it. How many barrels had he left?

12. A man sold land for $7750 and gained $1450. How much would he have received for it, if he had sold it at a loss of $685?

LESSON 33.

1. From $86\frac{3}{5}$ take $38\frac{6}{7}$.

2. $\dfrac{(\frac{3}{4} \times \frac{5}{9}) \div (\frac{5}{8} \times \frac{3}{4})}{(5\frac{1}{2} \div 4\frac{2}{5}) \times \frac{4}{10}}$.

3. $20\frac{8}{9} - 8\frac{1}{3} + 4\frac{5}{6}$.

4. $14\frac{7}{8} + 6\frac{1}{4} - 7\frac{3}{4}$.

5. Add $\frac{4}{5}$, $\frac{7}{11}$, $\frac{13}{18}$, and $\frac{7}{9}$. 6. $7\frac{1}{2} + 5\frac{5}{6} + 4\frac{7}{8} + 9\frac{3}{4} + 3\frac{11}{12}$.

7. Divide $\frac{14}{15}$ of $\frac{9}{16}$ of $1\frac{6}{11}$ times $\frac{10}{21}$ of 28 times $\frac{11}{18}$ by $2\frac{5}{6}$ times $\frac{4}{7}$ of $\frac{1}{13}$.

8. How many cubic inches are there in a cube of marble 38 inches on each edge?

9. Sold a horse and carriage for $345 and lost a sum equal to $\frac{2}{7}$ of the cost. Find the cost.

10. The sides of a garden are 168, 280, 182, and 252 ft. long respectively. How long boards can be used in fencing it without cutting any of them?

11. A earned \$1375. He spent \$348 for board and \$477 for other expenses. What part of his salary did he save?

12. A and B are 68 miles apart. If they travel away from each other, A 5 miles an hour and B 6 miles an hour, how far apart will they be at the end of 28 hours?

LESSON 34.

1. Multiply 125 by $8\frac{6}{25}$.

2. $26\frac{3}{4} + 4\frac{1}{4} - 2\frac{1}{2} + 3\frac{1}{2}$.

3. $\frac{5}{8} + \frac{4}{5} + \frac{7}{3} + \frac{11}{7}$.

4. What part of 171 is 117?

5. $140 + 1\frac{5}{6} - (8\frac{7}{12} - 1\frac{1}{6})$.

6. Find the sum of $\frac{1}{3}$ and $\frac{1}{5}$ by inspection.

7. What are the prime factors of 1935 and 2556?

8. A grocer bought 185 bushels of potatoes at \$$\frac{3}{4}$ a bushel.

9. How many square feet are there in a floor 45 ft. long and 34 ft. 4 in. wide?

10. If I put $\frac{1}{2}$ of my money in one bank, $\frac{1}{4}$ in another, $\frac{1}{5}$ in another, and have \$4200 left, how much money have I?

11. There are three wheels, which revolve in 25, 30, and 50 seconds respectively. Find the shortest time in which all of them will make an exact number of revolutions.

12. If the dividend is \$11150, the quotient \$75, and the remainder \$50, what is the divisor?

13. If a man pays \$4680 for 18000 pounds of wool, for how much must he sell it per pound to gain \$1080?

LESSON 35.

1. Add $72\frac{1}{2}$ and $85\frac{8}{9}$.

2. $\dfrac{4\frac{6}{7}}{7 + \dfrac{2\frac{1}{2}}{1\frac{2}{3}}}$.

3. $162 \div 7\frac{5}{11}$.

4. $13\frac{5}{7} \div 4 - 2\frac{2}{3}$.

5. $5\frac{3}{8} \times 7\frac{3}{4} + 56\frac{4}{5}$.

6. Divide $25\frac{1}{7}$ by 8.

7. $7\frac{1}{2} \times 3\frac{3}{4} + 15\frac{3}{5}$.

8. *Find the* G. C. D. of 504, 672, and 1260.

9. What fraction must be added to $\frac{7}{24}$ to make $\frac{5}{16}$?

10. Find the greatest common factor of 1815 and 3465.

11. How many cubic inches are there in a 16-inch cube?

12. At $4.50 a barrel, what part of a barrel of flour can be bought for $2.50?

13. If I buy 26 acres of land at $96 an acre and 22 acres at $144 an acre, what is the average price paid for all?

14. A has $4500 in one bank, which is equal to $\frac{4}{9}$ of the sum he has in another bank. How much has he in both banks?

15. A man sold property for $13250 and lost $2250. How much would he have gained or lost, if he had sold it for $17500?

LESSON 36. 1. $3\frac{1}{4}$ is what part of 52?

2. Find the sum of $\frac{1}{2}$ and $\frac{1}{5}$ by inspection.

3. $\frac{7}{9} + \frac{11}{12} - \frac{2}{3} + \frac{11}{18} - \frac{4}{9} + \frac{5}{6} + \frac{3}{4} - \frac{1}{2} + \frac{7}{12}$.

4. At $6\frac{3}{4}$ cents a pound, what will $84\frac{3}{4}$ pounds of sugar cost?

5. What prime numbers multiplied together will give 1908 and 2541?

6. How many times is the greatest common divisor of 484 and 1146 contained in their least common multiple?

7. A man paid $38 for a suit of clothes, which was $\frac{4}{9}$ of his money. How much had he left?

8. A farmer sold 460 bushels of potatoes at a uniform price for $299. How much did he receive per bushel?

9. How many square yards are there in the sides and bottom of a cistern 12 ft. long, 9 ft. wide, and 7 ft. deep?

10. A dealer sold 438 tons of coal at $4.75 a ton, and a number of tons of another kind at $5.20 a ton. He received for all $4264.50. How much did he sell?

LESSON 37.

1. Add $\frac{17}{45}$, $\frac{19}{35}$, and $4\frac{7}{8}$.

2. $$\frac{4\frac{2}{3} \div 5\frac{3}{5}}{\frac{12}{1\frac{1}{5}} - \frac{15}{2}}.$$

3. $6\frac{7}{8} + 2\frac{1}{2} \times \frac{5}{6}$.

4. $16 - \frac{3}{10} \times 12\frac{2}{3}$.

5. A merchant bought $124\frac{3}{4}$ yards of silk and sold $86\frac{11}{12}$ yards.

6. Divide $\frac{35}{36}$ of $\frac{4}{7}$ of 8 times $\frac{3}{5}$ by $\frac{14}{15}$ of $\frac{5}{21}$ of $1\frac{1}{3}$ times $9\frac{3}{4}$ times $\frac{6}{13}$.

7. Find the number of cubic inches in a stone 4 ft. long, 3 ft. wide, and 4 in. thick.

8. A man owing $1445 paid $487 at one time and $533 at another time. What part of the debt did he still owe?

9. A lady spent $\frac{1}{4}$ of her money for a cloak, $\frac{1}{5}$ of it for a dress, and had $60.50 left. How much did she spend?

10. A merchant has three kinds of tea; 60 pounds of the first, 75 pounds of the second, and 100 pounds of the third. He wishes to put it up in as few equal packages as possible without mixing the different kinds. How many packages will he have?

LESSON 38.

1. $28\frac{1}{4} + 36\frac{5}{9} - (44 - 15\frac{1}{6})$.

2. Find the sum of $\frac{1}{4}$ and $\frac{1}{7}$ by inspection.

3. Which is greater, and how much, $\frac{13}{21}$ or $\frac{19}{28}$?

4. What part of 10 gal. 1 pt. is 3 gal. 1 qt. 1 pt.?

5. Find the common prime factors of 2310 and 2604.

6. Multiply $\frac{3}{7}$ of $\frac{2}{3}$ of 13 times $\frac{17}{20}$ of $\frac{7}{11}$ by $\frac{11}{34}$ of $\frac{5}{13}$ of 2 times $\frac{2}{3}$ of 3.

7. How many square inches are there in a sheet of paper six feet long and 44 in. wide?

8. If $\frac{2}{5}$ of a barrel of sugar is worth $6.98, what is the *value of 4 barr*els at the same rate?

9. A man divided a sum of money equally among 8 poor boys, giving each one \$$7\frac{3}{4}$.

10. A merchant wishes to buy hats at \$3, \$4, \$5, and \$6 apiece and to expend the same sum for each kind. Find the least amount he can expend and the number of hats he will buy.

11. A dealer bought 845 tons of coal at \$3.65 a ton and a number of tons of another kind at \$4.10 a ton, paying for all of it \$5052.25. How many tons did he buy?

LESSON 39.

1. Add $18\frac{1}{2}$, $17\frac{2}{3}$, $48\frac{3}{4}$, and $26\frac{5}{6}$.

2. $$\frac{\left(3\frac{3}{4} \div \frac{3}{\frac{7}{5}}\right) \times 3}{4 - \frac{\frac{1}{3}}{\frac{1}{45}} \div 5}.$$

3. $5\frac{2}{5} \times 63 \div 1\frac{2}{3}$.

4. $48 - (16\frac{4}{7} - 3\frac{1}{2})$.

5. $41\frac{1}{3} + 56 - 24\frac{7}{30} - 4\frac{11}{15}$.

6. Find the G. C. D..of 320, 368, and 432.

7. What fraction must be added to $\frac{17}{35}$ to make $\frac{19}{20}$?

8. At \$$\frac{3}{4}$ a yard, how many yards of silk cost \$$85\frac{1}{2}$?

9. Find the greatest common divisor of 857 and 4242.

10. Sold 693 bushels of potatoes and had $\frac{2}{7}$ of my crop left. How many had I left?

11. If there is $\frac{8}{15}$ of a barrel of vinegar in a cask and $\frac{2}{5}$ of a barrel is sold, what part of it will remain?

12. A has \$484, B has twice as much less \$86.42, and C has \$62 more than three times as much as B. How much have all?

13. A, B, and C have each the same salary. D's salary is \$1350, and E's is \$1675. If they all receive \$5650, how much does A receive?

LESSON 40.

1. $9\frac{1}{9}$ is what part of $13\frac{2}{3}$?

2. Find the sum of $\frac{1}{5}$ and $\frac{1}{6}$ by inspection.

3. Find the L. C. M. of 352, 880, and 9680.

4. Find the prime factors of 1035 and 1323.

5. $\frac{7}{8} + \frac{11}{12} - \frac{1}{2} - \frac{2}{3} + \frac{19}{24} - \frac{3}{8} + \frac{5}{6} - \frac{3}{4} + \frac{7}{12}$.

6. Find the least common multiple of 233 and 659.

7. What will $28\frac{3}{4}$ bushels of potatoes cost at \$.$48\frac{1}{2}$ a bushel?

8. At \$$\frac{3}{4}$ a bushel, how many bushels of wheat can be bought for \$7220?

9. How many half-inch squares can be cut from a sheet of paper two feet long and 18 in. wide?

10. A man sold wheat for \$24200 and gained a sum equal to $\frac{1}{10}$ of the cost. Find the cost of the wheat.

11. If two men start from two cites 364 miles apart and travel toward each other, one 9 miles a day and the other 14 miles a day, how far apart will they be at the end of 13 days?

LESSON 41.

1. Find the sum of $\frac{9}{13}$, $\frac{11}{8}$, and $\frac{9}{7}$.

2. $$\frac{\frac{1}{2} + \frac{2}{3} + \frac{3}{4}}{\frac{1}{\frac{2}{5}} + \frac{1}{\frac{2}{3}} + \frac{1}{\frac{4}{7}}}.$$

3. $5\frac{4}{9} \times \frac{13}{14} \div \frac{2}{5}$.

4. $(\frac{7}{11} - \frac{8}{33}) \div \frac{5}{9}$.

5. What number added to $72\frac{5}{6}$ will give $116\frac{3}{4}$?

6. At \$$1\frac{3}{5}$ a basket, how many baskets of peaches can be bought for \$352?

7. What part of a yard of ribbon can be bought for \$.81, if a yard costs \$1.08?

8. How many cubic feet of air are there in a room 45 ft. long, 34 ft. wide, and 18 ft. high?

9. A man sold five cows for \$35, \$55, \$70, \$85, and \$135 respectively. Find the average price.

10. A father gave $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{6}$ of his property to his three children and had \$24000 left. How much did he give *to each?*

11. A, B, and C have \$1260, \$2268, and \$2772 respectively, with which they agree to buy land at the highest price per acre that will allow each one to invest all his money. How many acres will all buy?

LESSON 42. 1. Learn 47 . . . 57.

2. Add $\frac{4}{7}$, 3, $\frac{2}{5}$, $\frac{4}{3}$, and $\frac{7}{8}$. 3. $5\frac{2}{3} \times 7 - 19\frac{3}{7}$.

4. What part of \$361 is \$285? 5. $9\frac{3}{7} \times (5\frac{1}{4} + 3\frac{5}{7})$.

6. Find the sum of $\frac{1}{2}$ and $\frac{1}{6}$ by inspection.

7. Find the prime factors of 1110 and 8019.

8. Multiply $\frac{4}{7}$ of $\frac{3}{5}$ of $7\frac{1}{2}$ times $\frac{6}{7}$ of $\frac{2}{3}$ by $\frac{11}{18}$ of 49 times $\frac{2}{11}$ of $\frac{1}{16}$.

9. How many square feet are there in 62 boards, each one 16 ft. long and 1 ft. 3 in. wide?

10. A park is 48 rods long and 32 rods wide. How many times must a man walk around it to travel $22\frac{1}{2}$ miles?

11. Find the smallest sum of money that could be exactly expended in the purchase of cows at \$24, \$27, \$32, \$36, or \$56 apiece.

12. A man has 176 acres in one farm, which is $\frac{4}{9}$ of the number of acres in another farm. How many acres has he in both farms?

13. A square park is forty rods on each side. How many times must a man walk around it to travel 38 miles?

LESSON 43. 1. Learn 58 . . . 65.

2. $\dfrac{4\frac{1}{2} + 2\frac{1}{2} \div \frac{3}{5}}{3\frac{3}{5} - \frac{3}{4} \times \frac{2}{3}}$. 3. $12\frac{3}{5} + 7\frac{7}{8} - 17\frac{3}{4}$.

4. $48\frac{1}{2} + 58\frac{3}{4} + 37\frac{6}{7}$.

5. Find the G. C. D. of 147731 and 49373.

6. Divide $\frac{7}{8}$ of $\frac{3}{4}$ of $\frac{8}{14}$ of $\frac{2}{5}$ of $\frac{19}{20}$ by $\frac{3}{5}$ of $\frac{13}{20}$.

7. Which is greater, and how much, $\frac{11}{13}$ or $\frac{8}{11}$?

8. Find the greatest common factor of 8876, 4718, and 6951.

9. Find the largest number that will exactly divide 839 and 2768.

10. If a man can do a piece of work in $\frac{3}{4}$ of a day, what part of it can he do in $\frac{2}{3}$ of a day?

11. How many 2-inch cubes are there in a block of marble 2 ft. long, 18 in. wide, and 12 in. thick?

12. If a man spends $\frac{2}{3}$ and $\frac{1}{4}$ of his money and has $12.45 left, how much had he at first?

13. A grocer bought 75 bushels of potatoes at $.65 a bushel and sold them at 35 cents a peck.

LESSON 44.

1. Learn 66 . . . 70.
2. Multiply $\frac{19}{21}$ by 35.
3. $268 \times 7\frac{11}{26}$.
4. $2\frac{3}{5}$ is what part of 65?
5. $9\frac{3}{4} + 7\frac{2}{3} - 4\frac{5}{6}$.

6. Find the sum of $\frac{1}{3}$ and $\frac{1}{7}$ by inspection.

7. Find the common prime factors of 585 and 900.

8. $\frac{9}{10} + \frac{3}{4} - \frac{3}{5} + \frac{13}{15} + \frac{17}{20} - \frac{5}{6} - \frac{5}{12} + \frac{7}{10} + \frac{4}{5} - \frac{2}{3}$.

9. Find the difference between the greatest common divisor of 85 and 221 and their least common multiple.

10. What is the difference between two surfaces, one 46 ft. square and the other containing 784 square feet?

11. A merchant sold goods for $2035.35 and gained a sum equal to $\frac{2}{7}$ of the cost. Find the cost.

12. A merchant bought flour for $4976 and sold it for $5909, thereby gaining $$\frac{3}{4}$ a barrel. Find the cost per barrel.

13. If a merchant buys 189 barrels of flour for $897.75, how many barrels more will cost him $418 at the same *price?*

LESSON 45. 1. Learn 71 . . . 85.

2. Divide 301 by $8\frac{3}{5}$.

3. $23\frac{8}{11} \div 9$.

4. $\dfrac{1\frac{1}{2} + 1\frac{3}{4} - \frac{5}{6} + 2\frac{1}{8}}{2\frac{1}{2} + \frac{2}{3} + \frac{7}{8} - 2\frac{3}{4}}$.

5. $181 - 78\frac{7}{10}$.

6. $35\frac{7}{12} - (9\frac{5}{6} + 17\frac{5}{9})$.

7. Find the number of cubic feet of water in a cistern 12 ft. long and 9 ft. wide, if the water is 7 ft. deep.

8. A merchant cut 39 yards of muslin from a piece containing 52 yards. What part of the piece was left?

9. A man bought a house for $7500, which was $\frac{5}{8}$ of his money. How much had he left?

10. If I buy 844 sheep at $$4\frac{1}{4}$ a head, for how much must I sell them per head to gain $1055?

11. A man has four lots, which are 120, 420, 600, and 900 ft. wide respectively. What is the least number of lots of equal width into which he can divide them?

12. If I buy 422 sheep at $4.25 a head, for how much must I sell them per head to gain $527.50?

LESSON 46. 1. Learn 86 . . . 90.

2. What part of 3 bu. 4 qt. is 3 pk. 1 qt.?

3. Find the sum of $\frac{1}{5}$ and $\frac{1}{7}$ by inspection.

4. Find the prime factors of 1072 and 1269.

5. At $$3\frac{4}{5}$ a yard, what cost $34\frac{3}{4}$ yards of velvet?

6. What fraction must be added to $\frac{12}{49}$ to make $\frac{29}{42}$?

7. A man bought 9 horses at $150 apiece and 16 at $200. He sold them all at $185 apiece. Find the gain or loss per head.

8. If a number is diminished by $\frac{1}{4}$, $\frac{1}{6}$, and $\frac{1}{8}$ of itself and there is a remainder of 484, what is the number?

9. How many square yards of plastering are there in the walls and ceiling of a room 16 ft. long, 14 ft. wide, and 10 ft. high, deducting 104 sq. ft. for windows and doors?

10. Six men agree to expend the same amount in the purchase of land. The first pays $25 an acre; the second, $27; the third, $40; the fourth, $75; the fifth, $80; and the sixth, $120. What is the least number of acres that all can buy?

LESSON 47. **1.** Learn 91 . . . 98.

2. $\dfrac{(4\frac{1}{2} - 1\frac{3}{4}) \div 5\frac{1}{2}}{4\frac{1}{2} - 2\frac{3}{5}}$. **3.** $(173 - 49\frac{7}{8}) \times 9\frac{3}{4}$.

4. $\frac{1}{2} + 78\frac{5}{6} + 85\frac{5}{7} + 98\frac{18}{21}$.

5. Find the G. C. D. of 1095, 1022, and 292.

6. Which is greater, and how much, $\frac{23}{26}$ or $\frac{13}{37}$?

7. Find the greatest common factor of 1312 and 1197.

8. Find the greatest common divisor of 8476 and 2041.

9. At $\$\frac{2}{5}$ a pound, how many pounds of tea can be bought for $\$8\frac{4}{5}$?

10. A man lost $12000 and had $\frac{11}{15}$ of his money left. How much had he left?

11. How many cubic inches are there in a piece of slate 4 feet square and two inches thick?

12. If I buy $\frac{14}{15}$ of a bushel of peanuts and sell $\frac{2}{5}$ of a bushel, what part of the peanuts have I left?

13. A merchant made a profit of $91.50 on 122 yards of silk, which he sold at $2.25 a yard. Find the cost per yard.

LESSON 48. **1.** Learn 99 . . . 104.

2. $4\frac{4}{7}$ is what part of $10\frac{2}{7}$? **3.** $19\frac{4}{15} - (3\frac{5}{6} + 8\frac{5}{8})$.

4. Find the sum of $\frac{1}{6}$ and $\frac{1}{7}$ by inspection.

5. $\frac{13}{18} + \frac{8}{9} - \frac{2}{3} + \frac{19}{24} - \frac{3}{4} + \frac{11}{24} + \frac{7}{8} - \frac{5}{6} + \frac{5}{9} - \frac{11}{18}$.

6. Find the common prime factors of 1155 and 2205.

7. Multiply $\frac{5}{9}$ of 27 times $\frac{6}{7}$ of $\frac{11}{13}$ by $\frac{7}{30}$ of $\frac{5}{11}$ of $8\frac{2}{3}$ *times* $\frac{1}{15}$.

8. How many tiles 2 ft. square will pave a walk 48 yards long and 6 feet wide?

9. How many times is the greatest common divisor of 391 and 575 contained in their least common multiple?

10. A farmer sold 23 barrels of pears at $4.50 a barrel and 27 barrels at $6.50 a barrel. Find the average price.

11. A man spent $\frac{1}{3}$ of his money for a horse, $\frac{2}{5}$ of it for a carriage, and had $224 left. How much did the horse and carriage cost?

12. A man bought land at $125 an acre, paying $10000 for it. He afterward bought 50 acres more at $175 an acre. Find the average price paid for it all.

LESSON 49.

1. Add $21\frac{5}{8}$, $17\frac{11}{17}$, and $\frac{31}{34}$.

2. $\dfrac{\frac{2}{3}+\frac{3}{8}-\frac{1}{6}}{\frac{1}{1\frac{1}{3}}+\frac{1}{2\frac{2}{5}}-\frac{1}{1\frac{1}{2}}}$.

3. $\frac{11}{12} \times \frac{4}{3} + 8\frac{7}{9}$.

4. $2\frac{1}{4} \times \frac{5}{6} - \frac{3}{8} \times 1\frac{2}{3}$.

5. $5\frac{3}{8} \times 4 + 13\frac{1}{2} \div 3$.

6. Divide $\frac{5}{12}$ of $\frac{8}{9}$ of $\frac{12}{13}$ of $\frac{9}{10}$ by $\frac{14}{25}$ of 18 times $1\frac{4}{11}$.

7. A man having $218\frac{7}{16}$ acres of land sold $89\frac{19}{20}$ acres. How many acres had he left?

8. How many 3-inch cubes are there in a block 27 in. long, 12 in. wide, and 9 in. thick?

9. A man bought a house for $8400, which was $\frac{7}{13}$ of the sum paid for a store. Find the cost of both.

10. In a mixture of grain, there are 60 bushels of corn, 30 bushels of oats, and 15 bushels of rye. What part of the mixture is each?

11. A farmer sold 128 sheep at $$6\frac{1}{4}$ a head and a number of others at $$6\frac{1}{2}$ a head. He received for them all $1359. How many did he sell?

12. A man left $\frac{1}{2}$ of his estate to his wife; $\frac{2}{5}$ of it, which was $28000, to his son; and the remainder to his daughter. Find the value of the whole estate and the daughter's share.

LESSON 50.

1. Learn 71 . . . 104.

2. $\frac{3\frac{1}{2} + 3\frac{9}{10}}{9\frac{2}{3} + 7\frac{3}{5}}$. 3. $\frac{5\frac{3}{4} - 1\frac{1}{6}}{4\frac{2}{3} - 3\frac{5}{8}}$. 4. $\frac{4\frac{2}{3} + 5\frac{4}{5}}{24\frac{9}{30} - 8\frac{3}{5}}$.

5. If the dividend is $4400, the quotient $56, and the remainder $32, what is the divisor?

6. If $\frac{5}{7}$ of one number is 675 and $\frac{2}{3}$ of another number is 498, what is the sum of the two numbers?

7. A man paid me $184.75, which is equal to $\frac{5}{9}$ of what he still owes me. How much did he owe me at first?

8. A grocer bought flour at $4.35 a barrel, paying $1148.40 for it, and sold it at $5.15 a barrel.

9. After a farmer had sold $\frac{5}{9}$ of his crop of potatoes, he had 640 bushels left. What was the value of his whole crop at $.55 a bushel?

10. A man bequeathed to his wife $35000, which was $\frac{7}{16}$ of his estate. If the remainder of the estate was divided equally among his five children, how much did each receive?

11. A farmer sold $\frac{1}{3}$ of his wheat to one man, $\frac{1}{4}$ to another, and had 485 bushels left. What would he have received for his whole crop, if he had sold it at $.86 a bushel?

12. A merchant sold $\frac{3}{5}$ of a piece of silk at $1.75 a yard, receiving $47.25 for it. How many yards were there in the piece at first, and what was the value of the remainder at the same price?

DEFINITIONS, PRINCIPLES, AND RULES.

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1. **A Unit** is a single thing.

2. **A Number** is a unit or a collection of units.

3. **The Unit of a Number** is one of that number.

4. **An Abstract Number** is a number used without reference to any particular thing or quantity.

5. **A Concrete Number** is a number used with reference to some particular thing or quantity.

6. **Like Numbers** are numbers that express units of the same kind.

7. **Unlike Numbers** are numbers that express units of different kinds.

8. Numbers are expressed by words, by figures, or by letters.

9. **Notation** is the method of expressing numbers by figures or by letters.

10. **The Arabic Notation** is the method of expressing numbers by figures.

11. **The Roman Notation** is the method of expressing numbers by letters.

12. **Numeration** is the method of reading numbers expressed by figures.

13. When figures are written side by side, the figure at the right expresses *ones, which are called units of the first order.*

14. A figure in the second place expresses *tens, which are called units of the second order.*

15. A figure in the third place expresses *hundreds, which are called units of the third order.*

16. A figure in the fourth place expresses *thousands, which are called units of the fourth order.*

17. A figure in the fifth place expresses *ten-thousands, which are called units of the fifth order.*

18. A figure in the sixth place expresses *hundred-thousands, which are called units of the sixth order.*

19. A figure in the seventh place expresses *millions, which are called units of the seventh order.*

20. **A Period** is a group of three orders of units, counting from right to left.

21. RULE FOR NOTATION. — *Begin at the left and write the hundreds, tens, and units of each period in succession, filling all vacant places and periods with ciphers.*

22. RULE FOR NUMERATION. — *Separate the number into periods, beginning at the right.*

Begin at the left and read the number in each period, giving the name of each period except the last.

ADDITION.

23. **Addition** is the process of uniting two or more numbers.

24. **The Sum, or Amount,** is the number obtained by addition.

25. PRINCIPLE. — *Only like numbers can be added.*

26. RULE. — *Write the numbers to be added so that units of the same order shall be in the same column.*

Beginning at the right, add each column separately and write the sum, if it is less than ten, under the column added.

If the sum of any column exceeds nine, write the units under the column added, and add the ten or tens with the next column. Write the entire sum of the last column.

SUBTRACTION.

27. **Subtraction** is the process of taking one number from another.

28. **The Minuend** is the number from which another number is taken.

29. **The Subtrahend** is the number subtracted.

30. **The Difference, or Remainder,** is the number obtained by subtraction.

31. PRINCIPLES. — 1. *A number can be subtracted only from a like number.*

2. *The minuend is equal to the sum of the subtrahend and remainder.*

32. RULE. — *Write the subtrahend under the minuend so that units of the same order shall be in the same column.*

Beginning at the right, subtract each figure of the subtrahend from the corresponding figure of the minuend, and write the remainder below.

If any figure in the subtrahend has a greater value than the corresponding figure in the minuend, add ten to the upper figure and subtract; then diminish by one the next order of the minuend, and proceed as before.

MULTIPLICATION.

33. **Multiplication** is the process of uniting two or more equal numbers.

34. **The Multiplicand** is one of the equal numbers united.

35. **The Multiplier** is the number that shows how many equal numbers are united.

36. **The Product** is the number obtained by multiplication.

37. The multiplier and multiplicand are *factors* of the product.

38. Principles. — 1. *The multiplier is an abstract number.*

2. *The multiplicand and product are like numbers.*

3. *The product of several factors is the same in whatever order they are taken.*

4. *The product divided by either factor gives the other factor.*

39. Rule. — *Write the multiplier under the multiplicand so that units of the same order shall be in the same column.*

Multiply each figure of the multiplicand by each significant figure of the multiplier, beginning with units, and write the first figure of each partial product under the figure of the multiplier used.

Add the partial products thus obtained.

40. **To multiply** by 10, 100, 1000, etc.

Rule. — *Annex as many ciphers to the multiplicand as there are ciphers in the multiplier.*

DIVISION.

41. **Division** is the process of separating a number into equal parts, or it is the process of finding how many times one number is contained in another.

42. **The Dividend** is the number divided.

43. **The Divisor** is the number by which another number is divided.

44. **The Quotient** is the number obtained by division.

45. PRINCIPLES. — 1. *When it is required to separate a number into equal parts, the divisor is an abstract number, and the dividend and quotient are like numbers.*

2. *When it is required to find how many times one number is contained in another, the divisor and dividend are like numbers, and the quotient is an abstract number.*

3. *Multiplying the dividend by any number multiplies the quotient by that number.*

4. *Dividing the dividend by any number divides the quotient by that number.*

5. *Multiplying the divisor by any number divides the quotient by that number.*

6. *Dividing the divisor by any number multiplies the quotient by that number.*

7. *Multiplying or dividing both dividend and divisor by the same number does not change the quotient.*

46. RULE. — *Write the divisor at the left of the dividend with a line between them.*

Find how many times the divisor is contained in the fewest figures on the left of the dividend that will contain it, and write the quotient at the right.

Multiply the divisor by this quotient, and write the product under the figures divided. Subtract the product from the partial dividend used, and to the remainder annex the next figure of the dividend for a new dividend.

Divide as before until all the figures of the dividend have been used.

If any new dividend does not contain the divisor, write a cipher in the quotient and bring down the next figure of the dividend.

If there is a remainder after the last division, write it over the divisor at the right of the quotient.

FACTORING.

47. **An Exact Divisor** of a number is a number that will divide it without a remainder.

48. **A Prime Number** is a number that has no exact divisors besides itself and *one.*

49. **A Composite Number** is a number that has exact divisors besides itself and *one.*

50. **An Even Number** is a number that is exactly divisible by *two.*

51. **An Odd Number** is a number that is not exactly divisible by *two.*

52. **The Factors** of a number are the numbers which multiplied together produce the number.

53. **Prime Factors** are factors that are prime numbers.

54. **Common Prime Factors** of two or more numbers are prime numbers that are factors of each of the numbers.

55. **Factoring** is the process of finding the factors of a number.

56. To resolve a composite number into its prime factors.

RULE. — *Divide the number by any prime factor; then divide the quotient by another prime factor, and so on until the quotient is a prime number. The several divisors and the last quotient are the prime factors.*

57. To find the common prime factors of two or more numbers.

RULE. — *Divide the numbers by any common prime factor, and the quotients by any common prime factor, and so on until the quotients have no common factor. The several divisors are the common prime factors.*

CANCELLATION.

58. **Cancellation** is the process of shortening division by rejecting equal factors from dividend and divisor.

59. PRINCIPLE. — *Dividing both dividend and divisor by the same number does not change the quotient.*

GREATEST COMMON DIVISOR.

60. **A Common Divisor** of two or more numbers is a number that is an exact divisor of each of them.

61. **The Greatest Common Divisor** of two or more numbers is the greatest number that is an exact divisor of each of them.

62. Numbers are *prime to each other* when they have no common factor.

63. PRINCIPLES. — 1. *Every factor of a number is a divisor of that number.*

2. *A common factor of two or more numbers is a common divisor of those numbers.*

3. *The greatest common divisor of two or more numbers is the product of their common prime factors.*

4. *A common divisor of two numbers is a divisor of their sum and also of their difference.*

5. *A divisor of a number is a divisor of any multiple of that number, and a common divisor of two numbers is a divisor of any multiple of either of them.*

64. To find the greatest common divisor of numbers that are easily factored.

RULE. — *Resolve the numbers into their prime factors and find the product of all the common factors.*

65. To find the greatest common divisor of numbers that are not easily factored.

RULE. — *Divide the greater number by the less; then divide the last divisor by the last remainder, continuing until there is no remainder. The last divisor is the greatest common divisor.*

If more than two numbers are given, find the greatest common divisor of two of them; then find the greatest common divisor of this divisor and another of the given numbers, continuing this process until all the numbers have been used. The last divisor is the greatest common divisor.

LEAST COMMON MULTIPLE.

66. A Multiple of a number is a number that is exactly divisible by that number.

67. A Common Multiple of two or more numbers is a number that is exactly divisible by each of them.

68. The Least Common Multiple of two or more numbers is the smallest number that is exactly divisible by each of them.

69. PRINCIPLES. — 1. *Every multiple of a number contains all the prime factors of that number.*

2. *The least common multiple of two or more numbers contains all the prime factors of each of the numbers, but no others.*

3. *If two or more numbers are prime to each other, their least common multiple is their product.*

70. To find the least common multiple of two or more numbers.

RULE. — *Divide by any prime number that is an exact divisor of two or more of the numbers, and write the quotients and undivided numbers below.*

Divide these numbers as before, and so continue until the quotients and undivided numbers are prime to each other. The product of the divisors and numbers in the last line is the least common multiple.

FRACTIONS.

71. **A Fraction** is one or more of the equal parts of a unit.

72. **The Unit of a Fraction** is the number or thing that is divided into equal parts.

73. **A Fractional Unit** is one of the equal parts into which the number or thing is divided.

74. To express a fraction, two numbers are necessary; one to express the number of equal parts into which the number or thing is divided, and the other to express how many of the parts are taken. They are written, one above and the other below, the same horizontal line.

75. **The Numerator** is the number above the line, and it shows how many of the equal parts are taken.

76. **The Denominator** is the number below the line, and it shows into how many equal parts the number or thing is divided.

77. **The Terms of a Fraction** are the numerator and denominator.

78. **A Proper Fraction** is a fraction whose numerator is less than the denominator.

79. **An Improper Fraction** is a fraction whose numerator equals or exceeds the denominator.

80. **A Mixed Number** is a whole number and a fraction written together.

81. **The Reciprocal of a Number** is one divided by that number.

82. **The Reciprocal of a Fraction** is the fraction inverted.

83. PRINCIPLES. — 1. *Multiplying the numerator by any number multiplies the fraction by that number.*

2. *Dividing the numerator by any number divides the fraction by that number.*

3. *Multiplying the denominator by any number divides the fraction by that number.*

4. *Dividing the denominator by any number multiplies the fraction by that number.*

5. *Multiplying or dividing both terms of a fraction by the same number does not change the value of the fraction.*

84. Reduction of Fractions is the process of changing their form without changing their value.

85. A fraction is reduced to its lowest terms when the numerator and denominator are prime to each other.

86. To reduce a fraction to higher terms.

RULE. — *Multiply both terms of the fraction by the same number.*

87. To reduce a fraction to its lowest terms.

RULE. — *Divide both terms of the fraction by their greatest common divisor.*

88. To reduce an improper fraction to a whole or mixed number.

RULE. — *Divide the numerator by the denominator.*

89. To reduce a mixed number to an improper fraction.

RULE. — *Multiply the whole number by the denominator, add the numerator of the fraction to the product, and write the sum over the denominator.*

90. To reduce fractions to a common denominator.

RULE. — *Find the least common multiple of the denominators for a common denominator, divide the least common multiple of the denominators by the denominator of each fraction, and multiply the numerator by the quotient.*

ADDITION OF FRACTIONS.

91. **Like Fractions** are fractions that express like fractional units.

92. To express like fractional units, fractions must have a common denominator.

93. PRINCIPLE. — *Only like fractions can be added.*

94. RULE. — *If necessary, reduce the fractions to a common denominator, add the numerators, and write the sum over the common denominator.*

If there are mixed numbers, add the whole numbers and fractions separately and unite the results.

Reduce all results to their lowest terms, and improper fractions to whole or mixed numbers.

SUBTRACTION OF FRACTIONS.

95. PRINCIPLE. — *A fraction can be subtracted only from a like fraction.*

96. RULE. — *If necessary, reduce the fractions to a common denominator, find the difference between the numerators, and write the result over the common denominator.*

If either or both are mixed numbers, subtract the fraction and whole number separately and unite the results.

MULTIPLICATION OF FRACTIONS.

97. In multiplication of fractions, one or both of the factors are fractions.

98. RULE. — *Express all factors in the fractional form. Cancel all factors common to numerators and denominators, and multiply the remaining factors in the numerators together for the numerator of the product, and the remaining factors in the denominators together for the denominator of the product.*

DIVISION OF FRACTIONS.

99. In division of fractions, either the divisor or dividend is a fraction. Both may be.

100. Rule. — *Express both dividend and divisor in the fractional form, invert the divisor, and proceed as in multiplication of fractions.*

101. A Complex Fraction is a fraction having a fraction in its numerator, or in its denominator, or in both.

102. To reduce a complex fraction to a simple one.

Rule. — *Perform the indicated operations.*

103. To find the part that one number is of another.

Rule. — *Make the smaller number the numerator and the larger number the denominator of a fraction, and reduce the fraction to its lowest terms.*

104. To find the whole of a number when a fractional part of it is given.

Rule. — *Divide the part by the numerator and multiply the quotient by the denominator.*

TABLES.

UNITED STATES MONEY.

10 mills = 1 cent (ct).
10 cents = 1 dime.
10 dimes = 1 dollar.

25 cents = 1 quarter-dollar.
50 cents = 1 half-dollar.
100 cents = 1 dollar.

LONG MEASURE.

12 inches (in.) = 1 foot . . . ft.
3 feet = 1 yard . . . yd.
5½ yards, or 16½ feet = 1 rod . . . rd.
320 rods, or 5280 feet = 1 mile . . . mi.

SQUARE MEASURE.

144 sq. in. = 1 square foot . . . . sq. ft.
9 square feet = 1 square yard . . . . sq. yd.
30¼ sq. yd. }
272¼ sq. ft. } = 1 square rod . . . . sq. rd.
160 square rods = 1 acre . . . . A.
640 acres = 1 square mile . . . . sq. mi.

CUBIC MEASURE.

1728 cu. in. = 1 cubic foot . . . . cu. ft.
27 cubic feet = 1 cubic yard . . . . cu. yd.
128 cubic feet = 1 cord . . . . cd.

LIQUID MEASURE.

4 gills (gi.) = 1 pint . . . . pt.
2 pints = 1 quart . . . . qt.
4 quarts = 1 gallon . . . . gal.

The standard gallon contains 231 cubic inches.

DRY MEASURE.

2 pints = 1 quart . . . . qt.
8 quarts = 1 peck . . . . pk.
4 pecks = 1 bushel . . . . . . bu.

AVOIRDUPOIS WEIGHT.

16 ounces (oz.) = 1 pound . . . . . . lb.
100 pounds = 1 hundredweight . . cwt.
2000 pounds = 1 ton . . . . T.

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